Original Research Article

Saudi Medical Journal for Students (SMJS)
Official Journal of Faculty of Medicine University of Tabuk
ISSN: 1658-8274 (Print version); 1658-8282 (Electronic version)

THE EFFECT OF PARENTAL STRESS ON CHILDREN'S PSYCHOLOGY DURING COVID-19 CRISIS IN MAKKAH REGION: CROSS-SECTIONAL STUDY

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ABSTRACT

Background and aim: The rapid transmission of COVID-19 has resulted in multiple restricted precautions that may lead to psychological impacts on individuals. Hence, it is essential to identify mental health issues to find the best solutions. Therefore, our study aims to inspect the effects of COVID-19 on children's mental health concerning the parents' stress levels in the Makkah region.
Methods: A descriptive anonymous cross-sectional study was conducted via a modified web-based questionnaire to assess children's psychological impact in correlation with parental stress during the coronavirus pandemic in the Makkah region, Saudi Arabia.
Results: This study includes 845 participants represented by 339 parents. Changes in the emotional state and behaviors among children were found in a total of 138 children (27.06%), in which the highest age group was 5-7 years (42.8%; 59). Moderate and high levels of stress were detected in parents (68.1% and 4.7%, respectively). No significant relation was seen between parental stress and psychological changes among their children. However, statistical significance was found between changes in children's psychology and family history of COVID-19 infection (P=0.001). Parents' nationality showed a statical significance difference for moderate to a high level of stress among foreigner parents (P=0.039 and 0.043, respectively, for mothers and fathers).
Conclusion: The current study revealed no significant relationship between parental stress and psychological impact on their children. However, higher levels of parental stress, as well as a significant change in children's emotional state and behaviors, were seen as an impact of COVID-19 quarantine.
Keywords: Children, psychology, Parental-stress, Quarantine, COVID-19, Makkah.

To cite this article: Almaghrabi M, Bawashkhah A, Abba AA, Algethami G, Alshareef M. Saudi Medical Journal For Students: The Effect of Parental Stress on Children's Psychology during Covid-19 Crisis in Makkah Region: Cross-Sectional Study 2022;3(1):63-76

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an emerging infectious disease from the family of coronaviruses. It was initially discovered in China, Wuhan. [1,2] By November 8, 2020, World Health Organization (WHO) had registered more than 49 million confirmed cases of COVID-19 and more than 1 million deaths worldwide. [3] Due to its rapid transmission among people, many precautions have been taken worldwide to limit its spread, one of which is home quarantine. [4,5]

Besides the benefits of quarantine, it is stated that the endless time, the fear of getting infected and spreading it to others, the routine, and the lack of supplies such as food, clothes, and regular medical care are all considered stressors of quarantine that lead to frustration, anxiety, and anger. [6] Some ways to overcome the impact of quarantine include; giving adequate information about the length of quarantine, minimizing its duration, and raising awareness about the importance of healthy communication as it reduces the feeling of isolation and stress. [6]

Throughout the COVID-19 crisis, parents observed changes in their children's state of mind and attitude during the quarantine. The most common was the inability to concentrate, boredom, nervousness, desolation, and worries. [7] Parents can observe stress among children through signs like crying, sadness, extreme worry, unhealthy habit, headache or pain from an unknown cause, and more. [8] Accordingly, parents can work effectively with their children during COVID-19 to minimize their psychological impact [9]. This could be done through different methods such as increasing communication with them to know their fears and answer their questions [8,10], encouraging them to do some collaborative activities, make an active routine for them, relax, eat well, exercise, and get plenty of sleep. [8,10,11] In addition, communication with family and friends through online applications can also help the child. Parents need to know the signs of stress to deal with it as early as possible. [8,10]

Unfortunately, parents' stress can be a barrier, especially in a period of crisis like COVID-19. It could affect children's stress and stress expressions. [12] It has been proved that COVID-19 and quarantine have affected the population's health by increasing stress and depression. [13] A previous study examined the emotional impact of quarantine on children and adolescents. They found that behavioral and mental state changes were noticed in order from highest to lowest difficulty concentrating, boredom, and irritability. As expected, the children were exposed to screens more, as they spent less time doing physical activity and more time sleeping. [7] Another study concluded that the stress resulting from the COVID-19 outbreak harmed the parents' behavior towards their children. [14] To the best of the authors' knowledge, no study has covered the impact of quarantine on children's mental

state and its relation to the level of their parents' stress. Hence, it is important to investigate this relation as it affects the future community health and well-being, as well as to help to identify the effect of parent stress on children's psychology for further action regarding psychological rehabilitation programs, so we are conducting this study. The study aims to inspect the impact of the COVID-19 outbreak on children's mental health concerning the parents' stress levels in the Makkah region.

METHODS

Ethical approval and consent

Ethical approval was obtained from the Internal Review Board (IRB) at Umm Al-Qura University (UQU), Makkah, Saudi Arabia. Approval No. (HAPO-02-K-012-2020-06-409). An electronic informed consent was obtained from each participant prior to answering the questionnaire. Confidentiality was assured. Names or phone numbers were not requested from any participant.

Research design, population, and sample size determination

This descriptive cross-sectional study was conducted among parents and children in the Makkah region, Saudi Arabia. A sample of 845 individuals with 339 parents and 506 children was collected randomly through a self-administered online questionnaire from June 25 to July 8, 2020. Due to limited census information and publications of children and parents in the Makkah region, which decreased the accuracy of sample size determination, we considered all residents in Makkah to be our population size. The required sample size was calculated by OpenEpi version 3.01, [15] in consideration of the following: the population size is approximately 2,042,000 inhabitants (as reported in the last statistics for this year 2020), keeping the confidence interval (CI) level at 95% and considering Anticipated % of frequency as 50% and taking design effect as 1. The sample size was calculated to be 385 participants. Our study targeted residents of the Makkah region, parents of all ages with at least one child, and children. We excluded any child over 15 years as they considered beyond the standard age of children. In addition, we excluded any child less than three years as the tool will not help explain their impressions. Finally, special needs children were also excluded from the study. A computer-assisted Google survey program was used for the questionnaire, as face-to-face contact was not allowed during that period.

Questionnaire structure

A modified web-based questionnaire was used to assess the children's psychological impact along with parental stress during the coronavirus pandemic. It is distributed bilingually (Arabic and English) via different platforms on social media. Arabic questionnaire was translated back to English for analysis and publication. This questionnaire was inspired, combined, and modified using two different sources, and all modifications were done after permission. [7,16] Our adapted questionnaire consists of three sections, as follows:

Section 1. Socio-demographics and family characteristics: included six questions about whether they are living with their child or not,

age, nationality, educational level, marital status, and occupation. As well as seven questions about residential area, number of family members in the house, family income, description of the house (whether have outdoor space or not), house space (number of rooms), place where the child lived during quarantine, and any family member with a previous history of covid-19 infection.

Section 2. Parental perception of the emotional and behavioral effects of the quarantine on their child/children; this included 30 factors of different behavioral and emotional changes; each factor consisted of 5 options ranging from "much less compared to before quarantine" to "much more compared to before quarantine."

Section 3. Perceived mental stress level among parents is a classic stress assessment instrument that helps to understand how different situations affect feelings and perceived stress. It included ten questions about parents' feelings and thoughts during the last month. For each question, we used the 5-point Likert scale for the participant to admit their agreement level. These five points were: ("never," "almost never," "sometimes," "fairly often," and "very often").

Statistical analysis

Participants' data were entered automatically via an Excel sheet where it was cleaned, coded, and fed to statically software IBM Statistical Package for the Social Sciences (SPSS) version 23 for conducting all statistical issues. Descriptive statistics were used (frequency and percentage); statistical significance was determined at $p \leq 0.05$. And CI was considered as 95%. The Chi-square test was applied for categorical data analysis. Additionally, Pearson's Correlation Coefficient (PCC) was run to discover the relation between parental stress and their children's psychological impact. A total of 339 parents registered their family demographic information, including their own and partner's demographics and some general information about the family.

Then, each parent registered their perception of quarantine's emotional and behavioral effects on their child/children, who reached 506 children. Finally, they individually logged their responses to the Perceived Stress Score (PSS).

RESULTS

Socio-demographic characteristics of the participants

The demographical data of 845 participants (parents/ children) of the study were represented by 339 parents, as demonstrated in Table1 . Most respondents were mothers (75.8%) and lived in Makkah (76.7%). Most participants had 5-7 family members in the house (52.5%), followed by 2-4 members (36.3%). It was noticed that most participants did not own outdoor space at home (63.1%), while those who owned outdoor space, either garden or balcony, were 125 (36.9%). Family income was over 10,000 SAR in 176 participants (51.9%), while only 6 (1.8%) had no income. Regarding the living status information, most children stayed with their parents (65.8%). The results showed only 85 (25.1%) had got infected with COVID-19 in the family. The relative relation of 37 of them was the first degree. Regarding parental data, almost all of them were living with their children (98.5% and 90.3% for mothers and

Table1 : Socio-demographics and sample characteristics of the participant

General information of the family (n=339)		
Characteristic		*No (%)*
Parent	Mothers	272 (75.8%)
	Fathers	82 (24.2%)
Residence area	Makkah	260 (76.7%)
	Jeddah	79 (23.3%)
Number of family member in the house	2-4	123 (36.3%)
	5-7	178 (52.5%)
	8-10	34 (10%)
	More than 10	4 (1.2%)
Description of the house	Outdoor space (garden)	72 (21.2%)
	Outdoor space (balcony)	53 (15.6%)
	No outdoor space	214 (63.1%)
House space (number of rooms)	1-2 room/s	6 (1.8%)
	3-4 rooms	130 (38.3%)
	5 rooms	103 (30.4%)
	More than 5 rooms	100 (29.5%)
Family income	< 5000 SAR	41 (12.1%)
	5000 - 10,000 SAR	116 (34.2%)
	> 10,000 SAR	176 (51.9%)
	No Income	6 (1.8 %)
During the quarantine, where did the child/children lived?	With their parents only	223 (65.8%)
	In the big family house	99 (29.2%)
	With some family member (uncle or aunt)	17 (5%)
Was anyone in the family diagnosed with covid-19?	Yes	85 (25.1%)
	No	254 (74.9%)
If yes, what is the relative relation?	The child	3 (0.9%)
This is a specific question for those who answered 'yes' in the previous item (n=85)	First degree	37 (10.9%)
	Second degree	28 (8.3%)
	Distant family member or friends	17 (5%)
	none	254 (74.9%)

Parents' characteristics (n=339)			
Characteristic		*Mothers*	*Fathers*
Does the parent live with the child /children?	Yes	334 (98.5%)	306 (90.3%)
	No	3 (0.9%)	23 (6.8%)
	Passed away	2 (0.6%)	10 (2.9%)
Age	≤29	63 (18.7%)	19 (5.8%)
	30-39	121(35.9%)	110 (33.4%)
	40-49	126 (37.4%)	112 (34%)
	≥50	27 (8%)	88 (26.7%)
Nationality	Saudi	293 (86.9%)	290 (88.1%)
	Non-Saudi	44 (13.1%)	39 (11.9%)
Educational level	Less than high school	24 (7.1%)	40 (12.2%)
	High school/ diploma	72 (21.4%)	93 (28.3%)
	Collage or above	241 (71.5%)	196 (59.65%)
Marital status	Married	312 (92.6%)	323 (98.2%)
	Divorced/ Widow	25 (7.4%)	6 (1.8%)
Occupation	Health care provider	23 (6.8%)	26 (7.9%)
	Retired	13 (3.9%)	35 (10.6%)
	Field work	69 (20.5%)	107 (32.5%)
	Office work	72 (21.4%)	137 (41.6%)
	Not working/ Student	160 (47.4%)	24 (7.3%)

fathers respectively). Parents' ages show a remarkable convergence, as most mothers' ages are between 40-49 years (37.4%), followed by 30-39 years (35.9%). On the

other side, most of the fathers' age were between 40-49 years in 112 (34%), followed by 30-39 years in 110 (33.4%) participants. Most of the parents were Saudis (86.9%, 88.1%), married (92.6%, 98.2%), and their educational level at college or above (71.5%, 59.65%) for both mothers and fathers, respectively. Most mothers were not working/students (47.4%), while most fathers had office work jobs (41.6%).

Parental perception of the emotional and behavioral effects of the quarantine on their child/children

One of the main issues in our study is to inspect the psychological effect of quarantine on children. Thus, 30 factors (previously prescribed in methods-section 2.2) were listed in a multiple-choice grid table to accomplish the objective. One point was given to each participant who chose one of the following options "sometimes, fairly often, or very often." For each participant, a maximum score of 30 was calculated. Furthermore, a score of 16 or above was a significant psychological impact. Table 2 represents the total number of results, in which 138 children (27.06%) have recorded a significant change in their psychology (emotional state and behavior changes). This number is distributed from the highest to lowest between three groups: children aged 5-7 years (42.8%), 8-10 years (36.2%), and 11-15 years (21.0%). On the other hand, 368 children (72.93%) of the total number of children (506) have a negative psychological impact.

Prevalence of perceived mental stress level among parents and gender differential

Error! Reference source not found. p rovides a total score of stress among parents. Nearly half of the patricians have moderate stress (68.1%), including fathers and mothers. Followed by low-stress levels detected in 92 (27.1%) participants. Lastly, high levels of stress were seen in 16 (4.7%) parents. No significance was detected between different groups of genders.

Association between parental stress and the psychological impact on their children during the quarantine

Pearson's Correlation Coefficient (PCC) was run to discover the relation between variables. It revealed no significant relationship between parental stress and psychological impact on children.

Family characteristics in association with parental stress and the psychological impact of quarantine on children

Error! Reference source not found. r epresents the distribution of family characteristics in association with parental stress and psychological impact on their children. We found that in children with psychological changes, 37.7% of them had a family member with a previous family history of COVID-19 infection compared to 62.3% of children with no previous family history, with a recorded statistical significance (P=0.001). Other factors including residence area, number of a family member in the house, family income, description, and space of the house, as well as the place where the child lived during quarantine, had no significant relation with psychological changes among children (p=

Table 2: Parental perception of the emotional and behavioral effects of the quarantine on their child/children (n=506)

	Total (n=506)		Children between 5-7 years (n=193)		Children between 8-10 years (n=156)		Children between 11-15 years (n=157)	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Significant changes in children's psychology	138	27.06%	59	42.8%	50	36.2%	29	21.0%
No significant psychological impact	368	72.93%	134	36.4%	106	28.8%	128	34.8%

Table 3 Perceived mental stress level among parents and gender differential (n=339)

PSS score category	Total (n=339)		Mothers (n=272)		Fathers (n=82)		P-value*
	N	*%*	*N*	*%*	*N*	*%*	
Low stress	92	27.1%	68	26.5%	24	29.3%	
Moderate stress	231	68.1%	176	68.5%	55	67.1%	0.795
High stress	16	4.7%	13	5.1%	3	3.7%	

Notes: *Pearson chi-square test. The difference is significant at P value ≤0.05

0.114, 0.172, 0.301, 0.213, 0.078 and 0.634, respectively).

Regarding parents with moderate to high stress levels, 63.8% lived in Makkah during the quarantine time, while 36.2% participants lived in Jeddah, with statistical significance (P=0.002). As for the number of family members in the house, 55.2% of fathers and 51% of mothers with moderate to high stress levels have 5-7 members compared to 3.4%, and 1.1% of parents have more than ten members (P=0.446). Regarding family income among parents with moderate to high levels of stress, 60.3% of fathers and 48.1% of mothers have > 10,000 SAR income, while 0.0% of fathers and 2.1% of mothers had no income (P=0.097). Additionally, no statistical significance was recorded in the house space, where the child lived during quarantine, nor previous family history of COVID-19 infection (P=0.413, 0.478, and 0.136, respectively).

Parental demographics in association with their level of stress during the quarantine

The distribution of parental stress during the quarantine of the COVID-19 pandemic by their socio-demographic data is shown in Table 5. Exactly 98.4% of mothers living with their child/children had moderate to a high stress level compared to mothers who were not living with their child/children (1.6%) with recorded statistical significance (P=0.024). Also, 81% of mothers aged 40-49 years had moderate to high-stress levels compared to 7.9% of mothers aged more than or equal to 50 years (P=0.016). As for nationality, 90.5% of mothers were Saudis and had moderate to high-stress levels compared to non-Saudis mothers (9.5%)

(P=0.039). Other factors, including educational level, marital status, and occupation, had no significant relation to stress. On the other side, Saudi fathers had moderate to high-stress levels (81%) compared to 19% of non-Saudi fathers, with recorded statistical significance (P=0.043). Other factors, including living with their child, age, educational level, marital status, and occupation, had no significant relation to stress level (P=0.180, 0.111, 0.120, 0.445, and 0.586, respectively).

DISCUSSION

This study is among the first studies done in Saudi Arabia to examine the psychological impact of COVID-19 quarantine on children and their parents and discover the relationship between them. The setting of our study was chosen to be Makkah due to its higher numbers of COVID-19 recorded cases compared to other cities in the kingdom. [17] As well as special governmental precatory measures that have been done for this region only, such as temporary suspension of Muslim entry to perform the Umrah. All these changes and new situations may affect the emotional and behavioral well-being of the individuals.

Children's psychological impact

Our study revealed that from a total of 506 children, significant changes in psychology were detected in 138 (27.06%) participants. The highest age group was the younger children between 5-7 years (42.8%). These results are in agreement with a preliminary study conducted in China during the COVID-19 epidemic, which reported that children aged 3-6 years were more inclined to display symptoms than their peers from older age groups (P =.002). Examples of these symptoms include clinginess and afraid of family members getting the infection. [10] Anyhow, multiple studies have also reported changes in children's emotional state and behaviors during the quarantine of COVID-19. A previous study in Italy and Spain revealed that 85.7% of the parents had noticed these changes among their children. The most frequent symptoms were, respectively, difficulty in concentrating (76.6%), boredom (52%), and irritability (39%). [7] Several studies have also praised the negative effect of quarantine on children's psychology [6,18-20]. According to these terrifying results, there is an urgent need to detect these changes among children as early as possible to solve them much easier. In such situations, parents play an essential role, as the key to identifying psychological issues and comforting children in prolonged isolation is close and open communication with the children. [21]

Parental perceived stress

Assessment of parents' psychological health is essential for parents and their children. Consequently, an internationally validated tool for the assessment of perceived stress was used in this study. [16] Our results showed that more than half of the parents had a moderate stress level (68.1%). Moreover, 4.7% of parents had a high level of stress. These results are consistent with several studies that have examined stress or other psychological impacts among parents during various pandemics, including the COVID-19 crisis. These studies were done all over the globe, including in the United States [22,23],

Table 4: Family characteristics in association with parental stress and psychological impact among children during quarantine of COVID-19 pandemic (n=385)

Variable	Total number of children with +ve psychological impact (n=138)	P value	Moderate/high stressed mothers (n=189)	Moderate/high stressed fathers (n=58)	P value
Residence area					
Makkah	112 (81.2%)	0.114	158 (83.6%)	37 (63.8%)	0.002*
Jeddah	26 (18.8%)		31 (16.4%)	21 (36.2%)	
Number of family member in the house					
2-4	31 (22.5%)	0.172	68 (36%)	20 (34.5%)	0.446
5-7	88 (63.8%)		97 (51.3%)	32 (55.2%)	
8-10	18 (13%)		22 (11.6%)	4 (6.9%)	
More than 10	1 (0.7%)		2 (1.1%)	2 (3.4%)	
Family income					
< 5000 SAR	17 (12.3%)	0.301	30 (15.9%)	3 (5.2%)	0.097
5000 - 10,000 SAR	41 (29.7%)		64 (33.9%)	20 (34.5%)	
> 10,000 SAR	74 (53.6%)		91 (48.1%)	35 (60.3%)	
No Income	6 (4.3%)		4 (2.1%)	0	
Description of the house					
Outdoor space (garden)	24 (17.4%)	0.213	38 (20.1%)	17 (29.3%)	0.331
Outdoor space (balcony)	24 (17.4%)		31 (16.4%)	9 (15.5%)	
No outdoor space	90 (65.2%)		120 (63.5%)	32 (55.2%)	
House space (number of rooms)					
1-2 room/s	2 (1.4%)	0.078	4 (2.1%)	0	0.413
3-4 rooms	62 (44.9%)		67 (35.4%)	16 (27.6%)	
5 rooms	43 (31.2%)		60 (31.7%)	20 (34.5%)	
More than 5 rooms	31(22.5%)		58 (30.7%)	22 (37.9%)	
The place where the child/children lived in during quarantine					
With their parents only	97 (70.3%)	0.634	124 (65.6%)	43 (74.1%)	0.478
In the big family house	35 (25.4%)		56 (29.6%)	13 (22.4%)	
With some family member	6 (4.3%)		9 (4.8%)	2 (3.4%)	
Any family member with a previous history of covid-19 infection					
Yes	52 (37.7%)	0.001*	54 (28.6%)	7 (12.1%)	0.136
No	86 (62.3%)		135 (71.4%)	51 (87.9%)	

* Statical significance p-value was detected at ($p \leq 0.05$) using Pearson chi-square test.

China [24,25], Italy [26], and Korea. [27] These results make sense, as individuals face many difficult challenges during such a crisis as the COVID-19 pandemic. Copping with these struggles is a keystone. A study published in May 2020 reported that psychosocial crisis management and intervention models should be urgently implemented by the government or health care professionals to better cope with these psychosocial problems from various strata of society. The use of internet infrastructure, technology, and social media to combat both pandemic and info-demic needs to be introduced. [28]

Relation between parental stress and psychological impact on their children

The results of the present study support that there was no relation between parental stress

Table 5 Association between socio-demographics of the parents and stress levels (n=247)

Variable	Moderate/high stressed mothers (n=189)	P value	Moderate/high stressed fathers (n=58)	P value
Living with their child /children				
Yes	186 (98.4%)	0.024*	56 (96.6%)	0.180
No	3 (1.6%)		2 (3.4%)	
Age				
≤29	35 (18.8%)		5 (8.6%)	
30-39	58 (30.7%)	0.016*	16 (27.6%)	0.111
40-49	81 (42.9%)		25 (43.1%)	
≥50	15 (7.9%)		12 (20.7%)	
Nationality				
Saudi	171 (90.5%)	0.039*	47 (81%)	0.043*
Non-Saudi	18 (9.5%)		11 (19%)	
Educational level				
Less than high school	13 (6.9%)		9 (15.5%)	
High school/ diploma	37 (19.6%)	0.270	12 (20.7%)	0.120
Collage or above	139 (73.5%)		37 (63.8%)	
Marital status				
Married	174 (92.1%)	0.41	56 (96.6%)	0.445
Divorced/ Widow	15 (7.9%)		2 (3.4%)	
Occupation				
Health care provider	14 (7.4%)		5 (8.6%)	
Retired	8 (4.2%)		6 (10.3%)	
Field work	43 (22.8%)	0.111	18 (31%)	0.586
Office work	39 (20.6%)		27 (46.6%)	
Not working/student	85 (45%)		2 (3.4%)	

* Statical significance p-value was detected at ($p \leq 0.05$) using Pearson chi-square test.

and psychological changes among their children. This finding is consistent with another study published in August 2020, which revealed no significant relationship when they used a linear regression model (R=.11, p=.31). [29] On the other hand, some studies conflict with our results. [30,31] Regarding demographical relation, our study revealed a statistically significant relationship between changes in the children's psychology and family history of COVID-19 infection (P=0.001). Additionally, the fathers' residence area was significantly associated with moderate to high stress levels (P=0.002). It could be understood as living in Makkah city was more challenging than living in Jeddah due to some specific precursory masseurs that have been done during the COVID-19 crisis. Also, parents' nationality showed a statical significance with having moderate/high levels of stress among parents (P=0.039 and 0.043, respectively, for mothers and fathers). Lastly, mothers who were 'living with their child' and also their 'age' had recorded a significant relation among mothers regarding having moderate to a high level of stress (P=0.024 and 0.016). Most of these results

are in agreement with other recorded studies in the literature. [29,30]

Limitations, Strengths, and Recommendations

The present study had some limitations that must be considered. First, most of the respondents in our study were married, Saudis, and highly educated. Therefore, the results may not apply to different family structures. Secondly, there is no validated tool (until the time of conducting the study) to assess changes in children's emotional state and behaviors during the COVID-19 pandemic. We adapted and revised a previously published tool from another study done in Italy and Spain. [7] Lastly, Shared-method bias is probable since parents are the only reporters for all study variables, and a self-report survey was the only tool used for data collection. Despite the limitations, our study's findings emphasize the importance of early detection of children's psychological changes as it may protect them from further complications. Our study results also reveal the large number of psychological stresses recorded in parents, which requires speedy finding effective solutions by individuals or institutions. Other researchers may find these results useful as base data for further investigations. However, we recommend more studies to be carried out regarding this issue in much better ways, avoiding this study's limitations.

CONCLUSION

The current study revealed no significant relationship between parental stress and psychological impact on their children. However, as an impact of COVID-19 quarantine, moderate to high-stress levels were seen in parents who live in Makkah. Additionally, significant changes in children's emotional states and behaviors were detected. We emphasize the importance of early detection of children's psychological changes to protect them from further complications. Ultimately, we recommend more studies to be carried out regarding this issue to clarify the finding in much better ways, avoiding the limitations of this study, as well as to investigate more the psychological effect of the crisis during this period with the different social and cultural changes on family's life, with the assessment of the level of needs for any phycological rehabilitation program for children and families.

ACKNOWLEDGMENTS

Conflicts of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Authors' contribution

All authors have contributed equally in conceiving and designing the analysis, collecting the data, performing the analysis, and writing the manuscript of the paper.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

Availability of data and materials

The authors confirm that the data supporting the findings of this study are available and

will be provided by the corresponding author on a reasonable request.

Disclaimer

All opinions shared in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

Abbreviations

COVID-19: Coronavirus disease 2019
WHO: World Health Organization
CI: confidence interval
IRB: Internal Review Board
UQU: Umm Al-Qura University
SPSS: Statistical Package for the Social Sciences
PCC: Pearson's Correlation Coefficient
PSS: Perceived Stress Score

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