Original Research Article

Parents' Stress and Children's Psychological Problems during the COVID-19 Outbreak in Saudi Arabia: A cross-sectional study without control groups

Abstract

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

Methods: Parents who havechildren aged between 4 and 16 years old (n=424)completed an online questionnaire in which they describedthe difficultiesthey faced,the parent-child dyadic stress, and their children's behavioral and emotional complicationsduring the pandemic.The participants filled the 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 moreaffected than older parents, 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. Having a child diagnosed with mental illnessincreased 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 as a parentis stressfulespecially 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 lockdownson families and their mental health.

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 was 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 of 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 Saudi study about the psychological effectsof COVID-19 used 1160 samples and showed that 25% of the general population experienced some sort of moderate to severe psychological impact (7). A Chinese study of 3613 Chinese students (7 to 18 years young) showed that 22.28% of children and adolescentshad clinical depression as well as increased levels of anxiety during the pandemic; these values are higher than pre-COVID. (8). AnItalianstudy 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 studiedpsychological 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 instruction 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 inefficienciesdue 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) andInternet and smartphone addiction (16). These collectively canaccelerate mental distress in children and parents.

Here, we evaluated the ongoing condition of mental health issues in children and their parents affected by the pandemic. Weinvestigated the underlying psychological factors to give scientific guidance to governments and psychological professionals.

Methods

Study Design and Participants

It is a cross-sectional study without control/comparison groups, it is approved by the ethical committee of IAU College of Medicine and the Psychiatrydepartment of King Fahd Hospital of the university, (IRB-2021-121-Med),and conducted according to the American Psychological Association guidelines.

Parents completed an anonymous online questionnaireusing QuestionPro and gave written informed consent. The questionnaire was distributedthrough social media 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 children, 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 questionnairewas 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. 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-relatedquestionnaires. There was no monetary incentive for participation. The final sample included 424 Saudi Arabian parents who provided data on all study variables:237 were mothers (mean age = 37 (SD±8).Of these, 36.1% had a high school diploma degree or less, 57.6% a bachelor's degree, and 6.9% a higher education degree.Another 187 were fathers (mean age = 44(SD±8))of whom 44.1% of whom had a high school diploma degree or less, 49.2% a bachelor's degree, and 6.7% a higher education degree. The mean age of the children was 9.57 (3.45); 261 were girls. 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 threedomains on the scale measure7 items, and every item is rated on a five-point rating scale. Items are summedto 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 modelincluding 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.

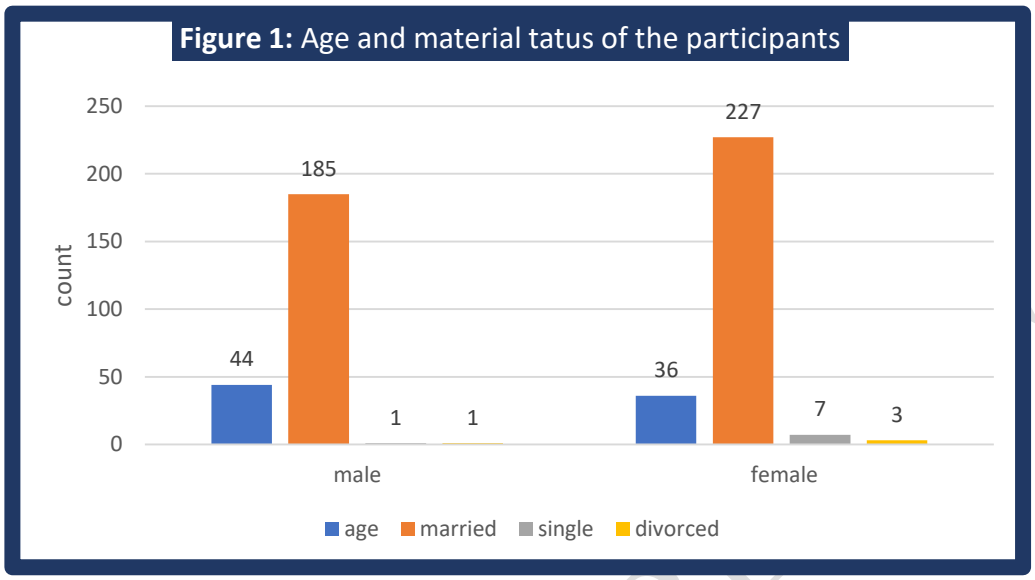
Descriptive statistics

There were 424 adults (237 females, 187 males) in this study(see Figure1).Most of the participants in both groups had postsecondary education (see Figure 2).

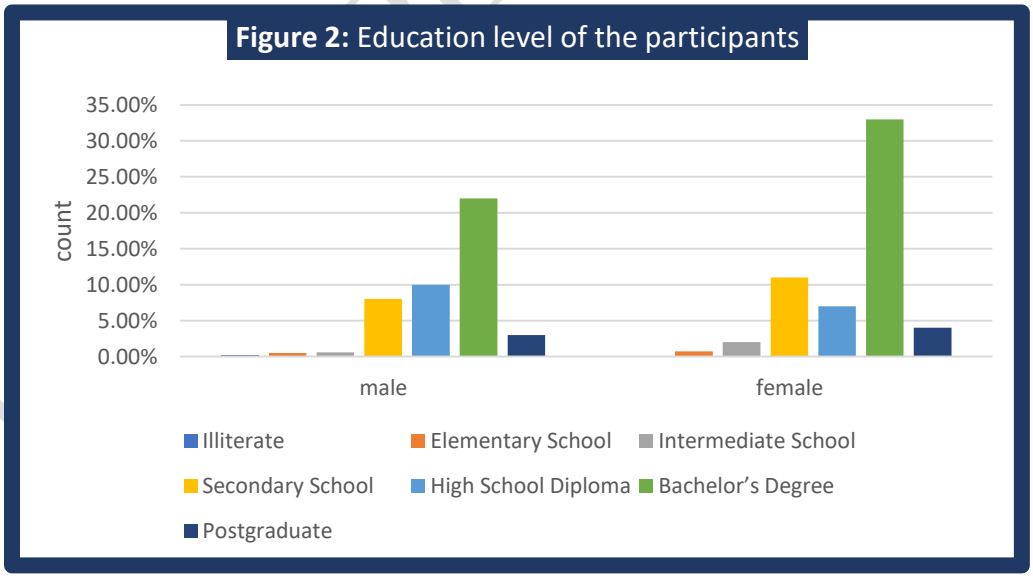
Correlation analysis

The correlation values among variables of interest are reported in Table 1. The results showed a statistically significant negative correlation between getting the infection and parent's individual stress (DASS). A significant positive correlation was seen with the child's gender and child's psychological problems (SDQ). There was a statistically significant negative correlation between losing the job and parent's individual stress (DASS). Gender was significantly correlated with parent's individual stress (DASS). Age was statistically correlated with parent's individual stress (DASS). Overall, there were no relevant associations of COVID-contact risk with parent's individual stress (DASS). However, there is a significant correlation between the effect of quarantine (Q5, Q6) and COVID-contact risk with children's psychological problems (SDQ) which included conduct problems as well as hyperactivity/inattention excluding emotional problems. There was also a significant correlation between the education level and having a relative

infected with COVID-19 (Q4) with parent's individual stress (DASS)(e.g., depression, stress, anxiety).



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.



correlation values among variables of interest are reported in Table1.

Table 1: 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
Gender	1																
Age	***-.412***	1															
Marital Status	0.082	0.020	1														
Educational Level	0.046	***-.158***	-0.076	1													
Q1	0.055	-0.034	0.004	***.113***	1												
Q2	***.171***	-0.067	0.026	-0.056	***.371***	1											
Q3	0.027	.206	-0.025	0.057	-0.003	0.070	1										
Q4	-0.035	-0.009	-0.029	***-.114***	***.106***	0.080	-0.046	1									
Q5	***-.122***	***.169***	-0.073	0.014	-0.029	-0.015	0.071	0.024	1								
Q6	***-.124***	***.150***	-0.047	-0.034	0.071	0.025	0.065	0.082	***-.100***	1							
Child's Gender	***.116***	-0.073	-0.044	-0.061	-0.004	-0.018	***.114***	-0.028	0.060	-0.028	1						
DASS Stress	***.318***	***-.266***	***.099***	0.005	***-.096***	***-.106***	-0.053	-0.036	0.070	***-.257***	0.011	1					
DASS Anxiety	***.277***	***-.201***	***.131***	-0.009	***-.235***	***-.167***	-0.043	-0.003	0.017	***-.170***	-0.019	***.749***	1				
DASS Depression	***.250***	***-.265***	***.140***	0.009	***-.100***	***-.156***	***-.145***	-0.003	0.001	***-.242***	0.000	***.824***	***.743***	1			
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

The sudden outbreak of COVID-19 left no country unscathed. It motivated governments to restrict all kinds of public activities while trying to control rising numbers of daily new cases. Saudi Arabia was one of the few countries that made an early decision to enforce a curfew. The closure of schools and many business sectors had psychological consequences on parents and their children (2).

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.

This study has some limitations that should be addressed. The first is regarding 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. Finally, the number of children with diagnosed mental illnesswas less than 6%, which seems small.

Quarantine is an effective tool to combat the pandemic (9), but it has negative effectssuch as emotional disturbance, stress, and depression(11). Quarantine mainly concentrates on the physical separation to minimize the spread of disease; however, there is limited focus

on mental health. Mental health plays a crucial role in the COVID-19 pandemic and the returntoa healthy post-pandemic community (9).

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 illnessessuch 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-beingespecially for vulnerable groups who might suffer psychological complications.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

Bibliography

1. Wang C, Horby P, Hayden F, Gao G. A novel coronavirus outbreak of global health concern. The Lancet [Internet]. 2020 [cited 1 April 2021];395(10223):470-473. Available from: https://pubmed.ncbi.nlm.nih.gov/31986257/
2. Xiong J, Lipsitz O, Nasri F, Lui L, Gill H, Phan L et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review. Journal of Affective Disorders [Internet]. 2020 [cited 8 August 2020];277:55-64. Available from:https://pubmed.ncbi.nlm.nih.gov/32799105/
3. Anand K, Karade S, Sen S, Gupta R. SARS-CoV-2: Camazotz's Curse. Medical Journal Armed Forces India [Internet]. 2020 [cited 1 April 2020];76(2):136-141. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0377123720300691?via%3Dihub
4. Nurunnabi M. The preventive strategies of COVID-19 pandemic in Saudi Arabia. Journal of Microbiology, Immunology and Infection [Internet]. 2021 [cited 4 April 2021];54(1):127-128. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7411502/
5. Novel Coronavirus (COVID-19) [Internet]. Saudi Ministry of Health. 2020 [cited 3 April 2021]. Available from: https://www.moh.gov.sa/en/HealthAwareness/EducationalContent/Corona/Pages/corona.aspx
6. Custodian of the Two Holy Mosques issues curfew order to limit spread of Novel Coronavirus from seven in the evening until six in the morning for 21 days starting in the evening of Monday 23 March The official Saudi Press Agency [Internet]. Saudi Press Agency. 2021 [cited 3 April 2021]. Available from: https://www.spa.gov.sa/viewfullstory.php?lang=en&newsid=2050402
7. Alkhamees A, Alrashed S, Alzunaydi A, Almohimeed A, Aljohani M. The psychological impact of COVID-19 pandemic on the general population of Saudi Arabia. Comprehensive Psychiatry. 2020;102:152192.
8. Duan L, Shao X, Wang Y, Huang Y, Miao J, Yang X et al. An investigation of mental health status of children and adolescents in china during the outbreak of COVID-19. Journal of Affective Disorders [Internet]. 2020 [cited 7 April 2021];275:112-118. Available from:https://pubmed.ncbi.nlm.nih.gov/32658812/
9. Spinelli M, Lionetti F, Pastore M, Fasolo M. Parents' Stress and Children's Psychological Problems in Families Facing the COVID-19 Outbreak in Italy. Frontiers in Psychology [Internet]. 2020 [cited 10 April 2021];11. Available from: https://www.frontiersin.org/articles/10.3389/fpsyg.2020.01713/full
10. Loades M, Chatburn E, Higson-Sweeney N, Reynolds S, Shafran R, Brigden A et al. Rapid Systematic Review: The Impact of Social Isolation and Loneliness on the Mental Health of Children and Adolescents in the Context of COVID-19. Journal of the American Academy of Child & Adolescent Psychiatry [Internet]. 2020 [cited 10 April 2021];59(11):1218-1239.e3. Available from:https://pubmed.ncbi.nlm.nih.gov/32504808/

11. Brooks S, Webster R, Smith L, Woodland L, Wessely S, Greenberg N et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The Lancet [Internet]. 2020 [cited 10 April 2021];395(10227):912-920. Available from:https://pubmed.ncbi.nlm.nih.gov/32112714/
12. Saudi Arabia to Apply Distance Learning for First Seven Weeks of New School Year 2020-2021 [Internet]. Saudi Press Agency. 2020 [cited 5 April 2021]. Available from: https://www.spa.gov.sa/viewfullstory.php?lang=en&newsid=2120909
13. Saudi Arabia Continues to Register Drop in New COVID-19 Cases [Internet]. Asharq AL-awsat. 2020 [cited 4 April 2021]. Available from: https://english.aawsat.com/home/article/2517546/saudi-arabia-continues-register-drop-new-covid-19-cases
14. "Education" launches the "Madrasati" platform as an interactive, remote educational alternative during the [Internet]. Saudi24news. 2020 [cited 3 April 2021]. Available from: https://www.saudi24news.com/2020/08/education-launches-the-madrasati-platform-as-an-interactive-remote-educational-alternative-during-the.html
15. Mohan A, Sen P, Shah C, Jain E, Jain S. Prevalence and risk factor assessment of digital eye strain among children using online e-learning during the COVID-19 pandemic: Digital eye strain among kids (DESK study-1). Indian Journal of Ophthalmology [Internet]. 2021 [cited 4 April 2021];69(1):140. Available from: https://pubmed.ncbi.nlm.nih.gov/33323599/
16. Dong H, Yang F, Lu X, Hao W. Internet Addiction and Related Psychological Factors Among Children and Adolescents in China During the Coronavirus Disease 2019 (COVID-19) Epidemic. Frontiers in Psychiatry [Internet]. 2020 [cited 4 April 2021];11. Available from:https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7492537/