



The Socioeconomic Effect of COVID-19 Pandemic on Iranian Children: The Mediating Role of Parents' Mental Health

Majid Golzarpour¹, PhD Candidate;  Homeira Sajjadi², MD; Paula Santana³, PhD; Gholamreza Ghaedamini Harouni^{4*}, PhD;  Claudia Costa³, PhD; Arash Ziapour⁵, PhD; Seyed Amar Azizi¹, PhD Candidate; Sima Afrashteh⁶, PhD

¹Student Research Committee, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

²Social Determinants of Health Research Center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

³Centre of Studies in Geography and Spatial Planning (CEGOT), Department of Geography and Tourism, University of Coimbra, Portugal

⁴Social welfare Management Research Center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

⁵Cardiovascular Research Center, Health Institute, Imam-Ali Hospital, Kermanshah University of Medical Sciences, Kermanshah, Iran

⁶Department of Biostatistics and Epidemiology, Faculty of Health and Nutrition, Bushehr University of Medical Sciences, Bushehr, Iran

*Corresponding author: Gholamreza Ghaedamini Harouni, PhD; Social welfare Management Research Center, University of Social Welfare and Rehabilitation Sciences, Koodakyar Alley, Daneshjoo Blv, Velenjak, Tehran, Iran. Tel: +98 9137026950; Email: qaedamini@gmail.com

Received: November 26, 2023; Revised: March 02, 2024; Accepted: April 07, 2024

Abstract

Background: COVID-19 has been troublesome for families due to its socio-economic changes worldwide. Therefore, the present study aimed to investigate the socio-economic burden of COVID-19 on children's health in Iran.

Methods: In the present cross-sectional study, the target population was 500 parents of children aged 5 to 18 years from 5 provinces of Iran in 2021. The samples were randomly selected from different geographical regions of Iran. The questionnaires on the socioeconomic burden of COVID-19, general health, child health, and place of residence landscape were employed to collect the data. For data analysis, t-test, structural equation modeling (SEM) were used in SPSS version 26 and AMOS version 26, respectively.

Results: The results indicated that based on determination coefficients of socio-economic burden of COVID-19, the socio-economic status of the parents and the settlement external perspective variable account for nearly 25% of the mental changes in parents. Furthermore, the combined effects of COVID-19's socioeconomic burden and parents' mental health accounted for 26% of the health changes observed in children. The socio-economic burden had a negative correlation with parents' mental health ($\beta=-0.383$, $P<0.001$) and children's health ($\beta=-0.202$, $P=0.003$). Nevertheless, a positive association was found between socio-economic status and parents' mental health ($\beta=0.138$, $P=0.014$) on the one hand and the external settlement perspective with parents' mental health ($\beta=0.243$, $P<0.001$), on the other hand. Also, the parents' mental health showed a positive correlation with children's health ($\beta=0.398$, $P<0.001$).

Conclusions: The present findings revealed that the socio-economic status and mental health of parents are important determinants of children's health; thus, health policymakers should prevent social economic inequalities during epidemics. Also, they should provide optimal support to vulnerable families to avoid negative effects on children's health.

Keywords: COVID-19, Socioeconomic, Mental health, Place of residence, Children

How to Cite: Golzarpour M, Sajjadi H, Santana P, Ghaedamini Harouni GR, Costa C, Ziapour A, Azizi SA, Afrashteh S. The Socioeconomic Effect of COVID-19 Pandemic on Iranian Children: The Mediating Role of Parents' Mental Health. Int. J. School. Health. 2024;11(4):2-10. doi: 10.30476/INTJSH.2024.100904.1363.

1. Introduction

The incidence of contagious diseases that turn into epidemics, such as COVID-19, has led to significant health and economic challenges as a result of various environmental and societal changes on a global scale and because of ongoing economic growth (1). Changes to the quality of economic activities worsen the management of new contagious diseases that can be transmitted due to human contact and presence. The increase in specialization in economic areas, the development of markets, and their globalization increase the threat of people coming in contact with sources that increase the incidence of very infectious

diseases (2, 3). Therefore, the existing adverse economic consequences caused by the Coronavirus disease in the world economy have been one of the many problems (4). Research showed that these infections or the associated threats can adversely affect production. In addition, supply chains may be broken or disrupted by these outbreaks. Most pandemics significantly reduce economic production globally and increase unemployment (1, 4). On the other hand, what governments do to control the spread of the disease and deaths caused by it have caused a significant decrease in employment and economic activity globally. It should be noted that if social rules to cut down on the spread of COVID-19 become strict, unemployment

increases, and all economic activities decrease, causing governments to face exchange problems (4). The impacts of the COVID-19 pandemic on mortality rates have prompted ethical concerns regarding the value of human existence, in addition to facing the financial challenges of this era. Studies showed that valuing how groups or individuals live based on their participation in the economic production causes how the lives of elderly and low-income people be undervalued in comparison with other people's lives (4, 5). Such an approach may not fully appreciate the unique challenges faced by women as a group who, on average, earn less (i.e., income related to market activities) compared to men. Moreover, the very approach neglects the value of women's unpaid work in the family and their routine roles as the important caregivers of the family (4, 6).

The restrictions caused by COVID-19 have put people at risk of developing symptoms and disorders of acute stress and led to more common psychological problems, emotional problems, depression, anxiety, bad mood, aggression, and sleeplessness caused by anxiety (7). Studies showed that grave concerns are raised about children's mental health due to the COVID-19 epidemic (8, 9), and the discussion about the mental costs of the disease is still ongoing (10, 11). Previous studies showed that children quarantined in areas heavily affected by epidemics, experience post-traumatic stress disorder (PTSD) as parents reported (12). Besides recording mental health of children throughout the pandemic, it is essential to identify the high-risk and protective components to determine the at-risk subgroups and take appropriate measures to protect them from mental health issues (13).

Parents typically have the most frequent interactions with their children. The World Health Organization (WHO) suggests that parents should talk about COVID-19 to their children in a truthful and age-friendly manner that meets their obsessions and alleviates their anxiety (14). By doing so, entering effective conversation with parents and children can be considered a factor to protect children's mental health (13). A previous study indicated that the socio-ecological impact of this epidemic on children's mental health is unclear, which may create challenges and have unfortunate consequences in the future (15). On the other hand, prior investigations on epidemics and pandemics have underlined the need to explore the effect of

the socioeconomic burden of COVID-19 on the mental health of parents and children (15, 16). Our study aimed to investigate the economic and social burden of COVID-19 on children's health in Iran with the mediation of parents' general health to address these gaps in the literature (Figure 1).

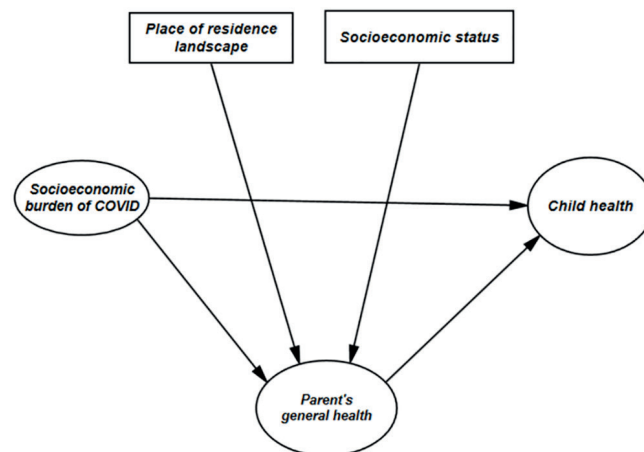


Figure 1: The figure shows the theoretical model of the research.

2. Methods

2.1. Study Design and Participants

The statistical population of the present cross-sectional study was the parents of children aged between 5 and 18 years in 2021. The study participants were chosen from different geographical regions of Iran. They were randomly selected among the people living in 5 provinces of Iran (Mashhad, Kermanshah, Zahedan, Tabriz, Chaharmahal and Bakhtiari).

To collect data, we utilized an online application to distribute a questionnaire. The participants were asked to fill out the survey anonymously. We send the survey hyperlink to the participants through different social networks, such as WhatsApp, Telegram, and Instagram. To address any questions or concerns about the research questions, we included a phone number in the hyperlink.

We chose 500 families with kids and teenagers between 5 and 18 years of age to participate in the study. The inclusion criteria were residing in one of the selected cities for the minimum of a year, having a child within the age range of 5 to 18 years, and being able to read and do the survey. The exclusion criteria were: parenting a child with intellectual disabilities or serious physical illness, unwillingness to participate in the study, and leaving the questionnaire incomplete.

2.2. Instruments

The demographic variables of interest were sex, age, children's education, parents' education, and economic and social status. In addition, in this study, questionnaires on the economic and social burden of COVID-19, general health, child health, and place of residence landscape were used to collect the data.

2.2.1. Socioeconomic Burden of COVID-19

The socioeconomic effect of COVID-19 was assessed using the COVID-19 checklist designed for families and societies (17). This checklist was designed by Santana and has been translated and used in 13 countries. It measures various aspects such as the characteristics of residence, house, effects of COVID-19 on activities in the community, diseases, and access to healthcare (17). Upon the approval of the checklist designers, we chose the questions that were meant to measure socioeconomic burden. Multiple Correspondence Analysis (MCA) was employed to explore and pinpoint the various factors and components involved, leading to the conclusion that the size and KMO=0.777 of the sample sufficed. According to MCA output, the ten questions measure three factors, respectively: questions 1-3 (social concerns), questions 4-7 (economic concerns), and questions 8-10 (family concerns). The three components accounted for 64.96% of the total variance. The answers in this checklist are rated on a 5-point Likert scale: not at all (1 point), slightly (2 points), sometimes (3 points), very often (4 point), and extremely (5 point). Within this ongoing survey, Cronbach alpha coefficient was estimated for the components as following: social concern (0.842), economic concern (0.772), and family concern (0.645), respectively.

2.2.2. General Health Questionnaire (GHQ-12)

This scale, designed by Goldberg (18), is a highly used scale concerning individuals' general health. This instrument has a 60-question form and three 30, 28, and 12-question forms. It has been translated into many languages and is widely used in general and clinical populations (19). A 12-question form was used to assess people's general health in this study. The instrument has two dimensions of positive and negative mental health. Its positive dimension consists of

six questions, and six other questions measure negative mental health. The 12-question form is graded on a Likert scale (much lower than usual, lower than usual, usually, more than usual). The instrument is scored in two ways: (0-1-2-3) and (1, 0, 0, 1), (19-21). In this study, the scoring method of (0-1-2-3) was used. The reliability and validity of this instrument in Iran were investigated and substantiated by Yaghubi and colleagues (19). In the present study, the Cronbach alpha coefficient for the mental health dimension was calculated to be 0.873, while the value for its negative dimension was found to be 0.860.

2.2.3. Child Health Questionnaire

This instrument was introduced by Landgraf and Abtes (22), and is a popular scale to measure children's health or health-related quality of life (23). In this study, a 28-item form was used to measure children's health condition, the construct validity of which was substantiated by Golzarpour and co-workers in Iran. In the validation process, the instrument was reduced to 22 items (24). The questionnaire content is rated on a Likert scale. A number of items are rated between 1 and 4 while others are rated between 1 and 5 (25). In this study, Cronbach alpha value was estimated to be 0.933, 0.900, 0.891, 0.908, 0.897, 0.888, and 0.927 for the dimensions of mental health, child satisfaction, child movement, child performance, parents' concern, parents' restrictions, and child's general health, respectively.

2.2.4. Social and Economic Status

The 5-question COVID-19 survey designed for families and populations was employed to assess the socio-economic standing of the household (17) for having or not having of car, house, laptop, dishwasher, and refrigerator. Multiple Correspondence Analysis (MAC) was utilized to explore the number of related factors and items, and according to the results, five items measure one factor, accounted for 37.25% of the overall variation.

2.2.5. Place of Residence Landscape

COVID-19 checklist raises questions for families and societies to evaluate the place of residence landscape (17) which was about the surrounding view of the house, i.e. having or not having balcony.

Table 1: Demographic variables

Demographic characteristics	Mean±SD
Age	
Parents	37±7.2
Children	11±3.4
Child's gender	
Female	66.17±24.75
Male	62.41±23.78
Parents' gender	
Female	62.42±23.44
Male	64.02±25.68
Parents' educational level	
Elementary education	57.10±25.73
Middle school education	59.84±24.62
High school education degree	62.71±22.86
Academic degree	66.39±24.47
Children educational level	
Elementary school	62.52±24.28
Middle school	66.46±23.85
High school education degree	65.53±25.37

SD: Standard Deviation

Table 2: Results of examining the economic and social burden model of COVID-19 with the mediation of parents' general health on child health

Dependent variable	Predictors	B*	S.E.*	C.R'	Beta	P value	R squared
C.H.Q*	<---	S.E.B*	-.830	.191	-4.349	-.383	0.001
	<---	S.E.S*	.483	.196	2.464	.138	0.014
	<---	P.R.L*	2.350	.559	4.208	.243	0.001
	<---	S.E.B*	-.660	.222	-2.968	-.202	0.003
	<---	G.H.Q*	.600	.095	6.315	.398	0.001

*B: Unstandardized Regression Coefficient, Critical Ratio; SE: Standard Error; SEB: Socioeconomic Burden; CHQ: Child Health; GHQ: Parents' General Health; P.R.L: Place of Residence Landscape; SES: Social and Economic Status

2.3. Statistical Analyses

In this study, t-test was applied using SPSS version 26 to analyze the data. Moreover, SEM was applied using AMOS version 26 to test the proposed model.

3. Results

3.1. Demographic Characteristics of the Participants

The mean age and standard deviation of the parents and their children were 37±7.2 and 11±3.4, respectively. Other demographic characteristics are presented in Table 1.

3.2. Research Model

3.2.1. Examining Direct Paths

Based on the fitted model results (CMIN=2.81,

GFI=0.943, CFI=0.979, RMSEA=0.060), a negative and significant correlation was found for the socioeconomic burden of COVID-19 and parents' general health ($\beta=-0.383$, $P<0.001$) (Table 2). Furthermore, a significant and positive correlation was observed between the economic and social status and parents' general health ($\beta=0.138$, $P=0.014$), as well as the place of residence landscape and parents' general health ($\beta=0.243$, $P<0.001$). A negative and significant correlation was also found between the socioeconomic burden of COVID-19 and child health ($\beta=-0.202$, $P=0.003$). The parent's general health was positively and significantly related to the child's health ($\beta=0.398$, $P<0.001$) (Table 2). Based on the coefficients of determination, the socioeconomic burden of COVID-19, parents' socioeconomic status, and place of residence landscape accounted for about 25% of the changes in parents' general health. In addition, the socioeconomic burden of COVID-19 and parents' general health simultaneously explained 26% of the changes in child health (Figure 2).

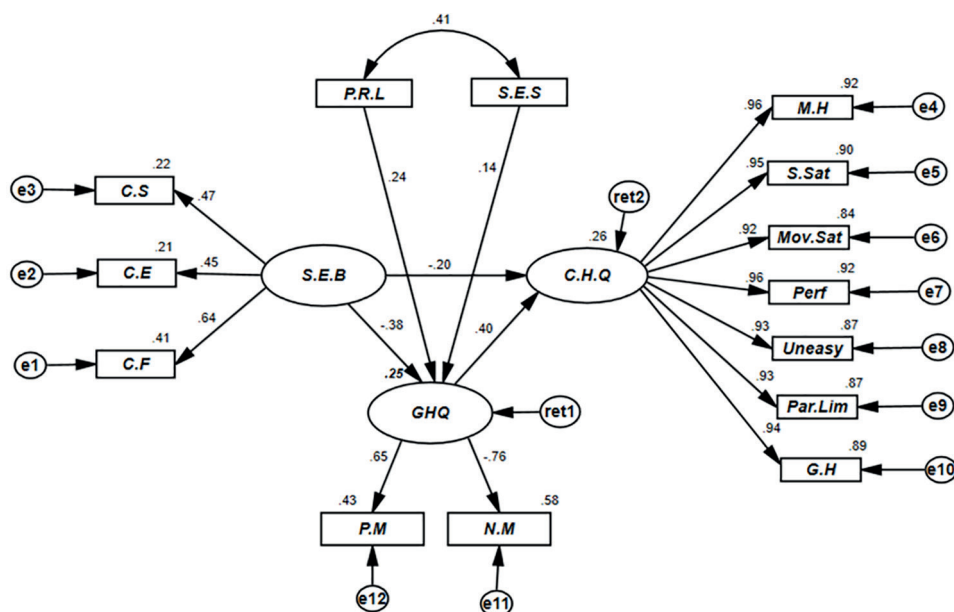


Figure 2: The figure shows the results of the analysis examining the relationship between the predictor variables and child health. SEB: Socioeconomic Burden; C.S: Social Concerns, C.E: Economic Concerns, C.F: Family Concerns; CHQ: Child Health; M.H: Child Mental Health, S.Sat: Child Self-Satisfaction; Mov.St: Child Movement Status; Perf: Child Performance; Uneasy: Parents' Concern; Par.Lim: Parents' Limitation; G.H: Child's General Health; GHQ: Parents' General Health; P.M: Positive Dimension of Mental Health; N.M: Negative Dimension of Mental Health; P.R.L: Place of Residence Landscape; SES: Social and Economic status

3.2.2. Examining Indirect Paths

According to the fitted model and the Sobel test (26), each of the three variables of the socioeconomic burden of COVID-19 ($\beta = -0.15$, $z = -3.58$, $P < 0.001$), place of residence landscape ($\beta = 0.09$, $z = 3.349$, $P < 0.001$) and family's socioeconomic status ($\beta = 0.05$, $z = 2.29$, $P = 0.021$) were indirectly and significantly related to child health. In the mentioned model, a statistically significant correlation was found between the place of residence landscape and social and economic status ($P < 0.001$, $r = 0.41$).

4. Discussion

The COVID-19 pandemic required a set of prescribed policies, including economic quarantine and physical distancing, to maintain public health and ensure the prospects of communities. The limitations caused by this disease have put people at risk of developing acute stress symptoms and disorders. Thus, the present study aimed to investigate the social and economic burden of COVID-19 on children's health in Iran with the mediating role of parents' general health.

Our results revealed that the socioeconomic burden of COVID-19 was negatively and significantly associated with parents' overall health. The findings

of other studies revealed that with the emergence of the pandemic, socioeconomic insecurity has increased in families. This, in turn, was associated with lower mental health, especially in low-income families (27, 28). The pandemic along with the manipulative and authoritative policies, such as the mandatory quarantine, keeping a physical distance, and social isolation were associated with lower mental well-being. These conditions were even worse for parents who worked outside home. The pandemic was associated with higher financial insecurity and longer time spent on taking care of children at home. With this regard, men and women did not experience the same pressure or burden. Similarly, households of varying economic statuses, including both affluent and impoverished ones, were also affected (27). Bayrakdar and Guveli showed that children in low-income households went to schools with limited facilities to cater for e-learning (29). The non-consistent imposition of post-pandemic burden suggests that general policy-making must consider the existing inequalities. Parents who worked outside home, particularly mothers, enjoyed fewer emotional and financial sources. The socioeconomic burden of COVID-19 can be reduced by further supporting child care and home education, such as non-financial support to share educational content. These inequalities need to be considered in planning for support

programs for people in society (27). It can be argued that socioeconomic programs that address people's problems and prevent them may improve community's mental health (28).

As the present study revealed, there was a significant and positive correlation between the place of the residence landscape and parents' general health. Similar to our study, the results of other investigations carried out in the U.S. showed that access to the place of the residence landscape, such as parks, was correlated with higher mental health of parents and children. Adequate access to parks led to parents' greater physical activity and parent-child cooperation in outdoor activities during the globally diseased conditions. Proximity and availability of parks can be a considerable resource for promoting individuals' and families' health (30). A review of the literature showed that the COVID-19 pandemic increased anxiety, depression, and stress (31, 32). Events affecting populations prove the need for population-scale facilities to take care of mental health in stressful conditions (30, 33-35).

Studies showed that visits to the place of the residence landscape, such as green spaces, were multiplied during the pandemic. During the COVID-19 pandemic, the frequency of visits to residential landscapes, including green spaces, significantly increased. This phenomenon can be attributed to the restrictions imposed on public gathering places and the heightened awareness of the benefits associated with visiting one's residential landscape (30, 36). The central point is that, consistent with our results, during the epidemic, green spaces located in residential areas have reduced manifestations of depression and anxiety (30, 37-39).

This study revealed that the socioeconomic burden of COVID-19 was negatively associated with children's health. A review of the literature showed that the epidemic increased socioeconomic insecurity in mothers (40). This issue is worrying due to its consequences for breastfeeding and children's health and growth. These results indicated that health policymakers need to assess the lack of universal support policies and provide better assistance and support to the groups at risk, such as mothers, to control the increase in socioeconomic inequalities and psychological burden on mothers. The lack of health of mothers increases the

subsequent adverse effects on children's health (41), especially through higher economic insecurity and lower psychosocial well-being in those already in low socioeconomic positions. Although families were provided with support packages during the pandemic, these packages may not have been enough for all households, especially low-income households. Therefore, future policies should think of new ways to help families, especially families with younger children or the poor, in order to prevent the rise of the socioeconomic inequalities (41).

In our study, a significant and positive correlation was observed between parents' general health and children's health. Parent depression has been the primary factor predicting children's behavioral disorders. Also, behavioral disorders in children reflect parents' mental problems because the mental disease of each parent increases the possibility of mental disorders in the child (42). Children's behavioral problems and parents' psychological demands were common predictors of the general health of all parents (43).

4.1. Limitations

There were certain limitations in this study. The present study depended on self-reported information, which could result in some sort of bias in responses, including the underestimation or overestimation of facts about health conditions or can also lead to bias in recalling information. Since this was a cross-sectional study, the researchers cannot infer the causality of the correlation between the socioeconomic burden of COVID-19 and the mediating role of parents' general health in children's health. There is a possibility that the mental health of families that already had socioeconomic and psychological problems was more affected by this epidemic; however, this requires a longitudinal study.

5. Conclusions

The socioeconomic burden of COVID-19 has put people at risk of acute stress. The present study showed that the socioeconomic burden of this disease negatively affected parents' and children's mental health and increased the socioeconomic insecurity in families. Although the results related to the place of residence landscape positively affected parents' mental health, this situation likely resulted in improved mental health for both

parents and their children.

Ethical Approval

This research was approved by the Ethics Committee at the University of Social Welfare and Rehabilitation Sciences, Tehran, Iran, with the code of IR.USWR.REC.1400.058. Also, written informed consent was obtained from the participants.

Acknowledgment

We thank all the individuals who participated in this study.

Authors' Contribution

Majid Golzarpour: Substantial contributions to the conception and design of the work, drafting the work. Homeira Sajjadi: Substantial contributions to the conception and design of the work, drafting the work. Paula Santana: Contributions to the conception of the work, drafting the work and reviewing it critically for important intellectual content. Gholamreza Ghaedamini Harouni: Substantial contributions to the acquisition, analysis, or interpretation of data, drafting the work. Claudia Costa: Contributions to the conception of the work, drafting the work and reviewing it critically for important intellectual content. Arash Ziapou: Substantial contributions to the acquisition, analysis, and interpretation of data, drafting the work. Seyed Amar Azizi: Substantial contributions to the acquisition and interpretation of data, drafting the work. Sima Afrashteh: Contributions to the conception of the work, reviewing the work critically for important intellectual content. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such as the questions related to the accuracy or integrity of any part of the work.

Funding: No funding.

Conflict of Interest: None declared

References

1. Atkeson A. How deadly is COVID-19? Understanding the difficulties with estimation of its fatality rate. *Staff Report*. 2020;598:26965. doi: 10.21034/sr.598.
2. Maital S, Barzani E. The global economic impact of COVID-19: A summary of research. *Samuel Neaman Institute*. 2020;2020:1-12.
3. Bashir MF, Ma B, Shahzad L. A brief review of socio-economic and environmental impact of Covid-19. *Air Quality, Atmosphere & Health*. 2020;13(12):1403-1409. doi: 10.1007/s11869-020-00894-8.
4. Tisdell CA. Economic, social and political issues raised by the COVID-19 pandemic. *Econ Anal Policy*. 2020;68:17-28. doi: 10.1016/j.eap.2020.08.002. PubMed PMID: 32843816; PubMed Central PMCID: PMC7440080.
5. Acemoglu D, Chernozhukov V, Werning I, Whinston MD. Optimal Targeted Lockdowns in a Multigroup SIR Model. *American Economic Review: Insights*. 2020;3(4):487-502. doi: 10.1257/aeri.20200590.
6. Tisdell CA. *Gender Inequality: Socioeconomic Analysis and Developing Country Case Studies*; 2019. doi: 10.1142/11293.
7. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet*. 2020;395(10227):912-920. doi: 10.1016/S0140-6736(20)30460-8. PubMed PMID: 32112714; PubMed Central PMCID: PMC7158942.
8. Wang G, Zhang Y, Zhao J, Zhang J, Jiang F. Mitigate the effects of home confinement on children during the COVID-19 outbreak. *Lancet*. 2020;395(10228):945-947. doi: 10.1016/S0140-6736(20)30547-X. PubMed PMID: 32145186; PubMed Central PMCID: PMC7124694.
9. Golberstein E, Wen H, Miller BF. Coronavirus disease 2019 (COVID-19) and mental health for children and adolescents. *JAMA Pediatr*. 2020;174(9):819-820. doi: 10.1001/jamapediatrics.2020.1456. PubMed PMID: 32286618.
10. Rubin GJ, Wessely S. The psychological effects of quarantining a city. *BMJ*. 2020;368:m313. doi: 10.1136/bmj.m313. PubMed PMID: 31992552.
11. Viner RM, Russell SJ, Croker H, Packer J, Ward J, Stansfield C, et al. School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review. *Lancet Child Adolesc Health*. 2020;4(5):397-404. doi: 10.1016/S2352-4642(20)30095-X. PubMed PMID: 32272089; PubMed Central PMCID: PMC7270629.
12. Sprang G, Silman M. Posttraumatic stress disorder in parents and youth after health-related disasters. *Disaster Med Public Health Prep*. 2013;7(1):105-

10. doi: 10.1017/dmp.2013.22. PubMed PMID: 24618142.
13. Tang S, Xiang M, Cheung T, Xiang Y-T. Mental health and its correlates among children and adolescents during COVID-19 school closure: The importance of parent-child discussion. *J Affect Disord.* 2021;279:353-360. doi: 10.1016/j.jad.2020.10.016. PubMed PMID: 33099049; PubMed Central PMCID: PMC7550131.
 14. WHO. Helping children cope with stress during the 2019-nCoV outbreak. Geneva, Switzerland: World Health Organization; 2020.
 15. Henderson M, Schmus C, McDonald C, Irving S. The COVID-19 pandemic and the impact on child mental health: a socio-ecological perspective. *Pediatric Nursing.* 2020;46(6):267-90.
 16. McBride O, Butter S, Murphy J, Hartman TK, McKay R, Hyland P, et al. Tracking the psychological and socio-economic impact of the COVID-19 pandemic in the UK: A methodological report from wave 5 of the COVID-19 Psychological Research Consortium (C19PRC) study. 2022;31(4):e1928. doi: 10.1002/mp.1928. PubMed PMID: 35759532; PubMed Central PMCID: PMC9349513.
 17. Santana P. COVID-19 impact on your family and community The University of Coimbra: Centre of Studies in Geography and Spatial Planning; 2020.
 18. Goldberg DP. User's guide to the General Health Questionnaire. Windsor; 1988.
 19. Yaghubi H, Karimi M, Omidi A, Barouti E, Abedi M. Validity and Factor Structure of the General Health Questionnaire (GHQ-12) In University Students. *Journal of Behavioral Sciences.* 2012;6(2):153-160. Persian.
 20. Hankins M. The reliability of the twelve-item general health questionnaire (GHQ-12) under realistic assumptions. *BMC Public Health.* 2008;8(1):355. doi: 10.1186/1471-2458-8-355. PubMed PMID: 18854015; PubMed Central PMCID: PMC2572064.
 21. Montazeri A, Harirchi AM, Shariati M, Garmaroudi G, Ebadi M, Fateh A. The 12-item General Health Questionnaire (GHQ-12): translation and validation study of the Iranian version. *Health Qual Life Outcomes.* 2003;1:66. doi: 10.1186/1477-7525-1-66. PubMed PMID: 14614778; PubMed Central PMCID: PMC280704.
 22. Landgraf JM, Abetz L. Measuring health outcomes in pediatric populations: Issues in psychometrics and applications. In: Spilker B, editor. *Quality of life and pharmacoeconomics in clinical trials*, Philadelphia (PA): Lip- pincott-Raven; 1996. p. 793-802.
 23. Landgraf J, Maunsell E, Speechley KN, Bullinger M, Campbell S, Abetz L, et al. Canadian-French, German and UK versions of the Child Health Questionnaire: methodology and preliminary item scaling results. *Qual Life Res.* 1998;7(5):433-45. doi: 10.1023/a:1008810004694. PubMed PMID: 9691723.
 24. Golzarpour M, Ghaedamini Harouni Gh, Vameghi M, Sajjadi H, Tavangar F. Validity and reliability of Persian version of children's health-related quality of life. *North Khorasan University of Medical Sciences.* 2017;8(3):447-459. doi: 10.18869/acadpub.jnkums.8.3.447. Persian.
 25. Golzarpour M, Vameghi M, Sajjadi H, Harouni GG. Explanation of Children's Health through Parents' Mental Health and Job Satisfaction by Structural Equation Modeling. *Global Journal of Health Science.* 2017;9(2):166. doi: 10.5539/gjhs.v9n2p166.
 26. Meyers LS, Gamst G, Guarino AJ. *Applied multivariate research: Design and interpretation.* Sage publications; 2016.
 27. Cheng Z, Mendolia S, Paloyo AR, Savage DA, Tani M. Working parents, financial insecurity, and childcare: mental health in the time of COVID-19 in the UK. *Rev Econ Househ.* 2021;19(1):123-144. doi: 10.1007/s11150-020-09538-3. PubMed PMID: 33456425; PubMed Central PMCID: PMC7802611.
 28. Kiely KM, Leach LS, Olesen SC, Butterworth P. How financial hardship is associated with the onset of mental health problems over time. *Soc Psychiatry Psychiatr Epidemiol.* 2015;50(6):909-18. doi: 10.1007/s00127-015-1027-0. PubMed PMID: 25683473.
 29. Bayrakdar S, Guveli A. Inequalities in home learning and schools' provision of distance teaching during school closure of COVID-19 lockdown in the UK. *Sociology.* 2023;57(4):767-788. doi: 10.1177/00380385221122444. PubMed PMID: 38603301; PubMed Central PMCID: PMC9618914.
 30. Hazlehurst MF, Muqueeth S, Wolf KL, Simmons C, Kroshus E, Tandon PS. Park access and mental health among parents and children during the COVID-19 pandemic. *BMC Public Health.* 2022;22(1):800. doi: 10.1186/s12889-022-13148-2. PubMed PMID: 35449096; PubMed Central PMCID: PMC9022731.
 31. Jones EA, Mitra AK, Bhuiyan AR. Impact of COVID-19 on mental health in adolescents: A systematic review. *Int J Environ Res Public Health.* 2021;18(5):2470. doi: 10.3390/ijerph18052470.

- PubMed PMID: 33802278; PubMed Central PMCID: PMC7967607.
32. Purtle J. COVID-19 and mental health equity in the United States. *Soc Psychiatry Psychiatr Epidemiol.* 2020;55(8):969-971. doi: 10.1007/s00127-020-01896-8. PubMed PMID: 32556376; PubMed Central PMCID: PMC7298157.
 33. Geng DC, Innes J, Wu W, Wang G. Impacts of COVID-19 pandemic on urban park visitation: a global analysis. *J For Res.* 2021;32(2):553-567. doi: 10.1007/s11676-020-01249-w. PubMed PMID: 33204057; PubMed Central PMCID: PMC7660132.
 34. Grima N, Corcoran W, Hill-James C, Langton B, Sommer H, Fisher B. The importance of urban natural areas and urban ecosystem services during the COVID-19 pandemic. *Plos One.* 2020;15(12):e0243344. doi: 10.1371/journal.pone.0243344. PubMed PMID: 33332364; PubMed Central PMCID: PMC7746267.
 35. Pouso S, Borja Á, Fleming LE, Gómez-Baggethun E, White MP, Uyarra MC. Contact with blue-green spaces during the COVID-19 pandemic lockdown beneficial for mental health. *Sci Total Environ.* 2021;756:143984. doi: 10.1016/j.scitotenv.2020.143984. PubMed PMID: 33277006; PubMed Central PMCID: PMC7688424.
 36. Rousseau S, Deschacht N. Public awareness of nature and the environment during the COVID-19 crisis. *Environ Resour Econ.* 2020;76(4):1149-1159. doi: 10.1007/s10640-020-00445-w. PubMed PMID: 32836836; PubMed Central PMCID: PMC7354367.
 37. Löhmus M, Stenfors CU, Lind T, Lauber A, Georgelis A. Mental health, greenness, and nature related behaviors in the adult population of Stockholm County during COVID-19-related restrictions. *Int J Environ Res Public Health.* 2021;18(6):3303. doi: 10.3390/ijerph18063303. PubMed PMID: 33806787; PubMed Central PMCID: PMC8004976.
 38. Dzhambov AM, Lercher P, Browning MH, Stoyanov D, Petrova N, Novakov S, et al. Does greenery experienced indoors and outdoors provide an escape and support mental health during the COVID-19 quarantine? *Environ Res.* 2021;196:110420. doi: 10.1016/j.envres.2020.110420. PubMed PMID: 33157110; PubMed Central PMCID: PMC8454400.
 39. Cheng Y, Zhang J, Wei W, Zhao B. Effects of urban parks on residents' expressed happiness before and during the COVID-19 pandemic. *Landscape Urban Planning.* 2021;212:104118. doi: 10.1016/j.landurbplan.2021.104118. PubMed PMID: 36569996; PubMed Central PMCID: PMC9757897.
 40. Azevedo FM, Morais NdSd, Silva DLF, Candido AC, Morais DdC, Priore SE, et al. Food insecurity and its socioeconomic and health determinants in pregnant women and mothers of children under 2 years of age, during the COVID-19 pandemic: A systematic review and meta-analysis. *Frontiers in Public Health.* 2023;11:1087955.
 41. Rougeaux E, Dib S, Vázquez-Vázquez A, Fewtrell MS, Wells JCK. Socio-economic impacts of the COVID-19 pandemic on new mothers and associations with psychosocial wellbeing: Findings from the UK COVID-19 New Mum online observational study (May 2020-June 2021). *PLOS Glob Public Health.* 2022;2(7):e0000576. doi: 10.1371/journal.pgph.0000576. PubMed PMID: 36962443; PubMed Central PMCID: PMC10021723.
 42. Karimzadeh M, Rostami M, Teymouri R, Moazzen Z, Tahmasebi S. The association between parental mental health and behavioral disorders in pre-school children. *Electron Physician.* 2017;9(6):4497-4502. doi: 10.19082/4497. PubMed PMID: 28848622; PubMed Central PMCID: PMC5557127.
 43. Chen S-Q, Chen S-D, Li X-K, Ren J. Mental health of parents of special needs children in China during the COVID-19 pandemic. *Int J Environ Res Public Health.* 2020;17(24):9519. doi: 10.3390/ijerph17249519. PubMed PMID: 33353165; PubMed Central PMCID: PMC7765938.