Original Research

PSYCHOLOGICAL EFFECT OF E–LEARNING IN LIGHT OF COVID–19 PANDEMIC ON CHILDREN IN BAGHDAD CITY

Maryam Aayd Ismail[1], Sarah Abdullatef Kadhim [2] , Musaab Majid Abdulwahhab [3] & Iman Abbas Fadhil[2]

[1]Psychiatric and mental health nursing department, College of Nursing, Al-Bayan University
[2] Adult nursing department, College of Nursing, Al-Bayan University
[3] Adult nursing department, College of Nursing, University of Baghdad

**Corresponding author: maryam.a@albayan.edu.iq*

ABSTRACT

Introduction: The Coronavirus 2019 (COVID-19) pandemic may be viewed as a traumatic stressor with severe detrimental effects on health. E-learning is transitioning from traditional education or training to more individualized and flexible electronic-based education and may also be referred to as distance learning, virtual education, digital education, or web-based training (WBT). Electronic learning in Iraq is a new experience, especially in primary schools. For that, we expect psychological and behavioural effects on students. This study is designed to determine the effects of e-learning in light of the Coronavirus 2019 (COVID-19) pandemic on children's psychological functioning from the parent's point of view.
Methods: A descriptive (cross-sectional) approach was adopted, and a non-probability (purposive) sample was used to collect the relevant data for the study from 646 parents (fathers and mothers) who have children in Baghdad's primary schools. A Google form has been used to collect data through the social media programs of the intended schools.
Result: Study results show that 50.4% of primary school students have a moderate degree while 48% have a mild degree of psychological and behavioural problems; these problems are associated with the class time of electronic learning during the time of Coronavirus 2019 (COVID-19) pandemic in p-value 0.000 and 0.04. However, there is a significant relationship between psychological and behavioural problems and variables related to electronic learning, like using electronic devices and activity after Coronavirus 2019 (COVID-19).
Conclusion: Most parents experienced moderate psychological and behavioural issues with children during the epidemic. To avoid potential problems, it is crucial to keep an eye on school students' mental health.

Keywords:Coronavirus 2019 (COVID-19) pandemic, E-learning, psychological Functioning, Primary School Age Children

Introduction

The World Health Organization (WHO) has deemed the Coronavirus diseases 2019 (COVID-19) an international public health emergency and has urged all nations to take precautions to contain the disease (World Health Organization, 2020). Several nations created healthcare procedures to prevent the spread of the virus because there are currently no available treatments. These protocols included measures that limited free circulation and, in some cases, required quarantine and social isolation (World Health Organization, 2020). Due to the separation of essential relatives and the heightened impression of loneliness and isolation, these preventive actions may have elevated the levels of sadness and anxiety (Banerjee & Rai, 2020). People may experience various mental health issues following a stressful event (Gerbe et al., 2018), and some pre-existing psychiatric illnesses, like the risk of suicidality, neurological abnormalities, and substance use disorders, could get worse (Adhanom, 2020). The Coronavirus disease 2019 (COVID-19) pandemic may be viewed as a traumatic stressor with severe detrimental effects on health (Lee, Kim & Kim, 2020). In 2021, evidence rapidly evolved, and therapeutic indications changed quickly to prevent or cure COVID-19 in the best ways. If an asymptomatic infection in children did not require specific treatment, therapeutic options were different based on the presentation. Vaccination is considered the best advisable strategy to prevent COVID-19 infection. Until now, immunization has been available for people aged five years and older, demonstrating good efficacy or an acceptable security profile (Elena & et al., 2022).

Schools in Iraq must be updated since technology is advancing so quickly. They had to be able to learn anywhere, at any time (Wolfinger, 2016). Over the past 20 years, some international institutions have adopted online education. On the other hand, most schools, colleges, and universities in Iraq do not employ this kind of instruction, and their staff is not familiar with what e-learning includes (Ja'ashan, 2020), (Lynch, 2004).

Learners need additional social support during a dire situation like the Coronavirus Disease 2019 (COVID-19) pandemic to increase their focus and enthusiasm for online learning (Harter, Whitesell, & Kowalski, 1994), (Lynch, 2004), (Villani & et al., 2020). To preserve social distance and stop the sickness from spreading, governments around the world should switch to electronic learning. Some nations immediately turned to internet education since they were already prepared for it. All universities and schools in Iraq offered elective and core courses via distance learning using a specific technology.

Coronavirus disease 2019 (COVID-19) pandemic has significantly altered people's daily life worldwide in a relatively short period. Many countries have adopted social solid restrictions, such as lockdowns, to prevent the virus from spreading (Eccles, 1993). Only a few instances of quarantine-like practices include home confinement, banning public gatherings and commuting to work unless necessary, closing schools, universities, and any non-essential businesses, and avoiding contact with people outside the family. A growing body of research shows that the lockdown is associated with poor social and emotional wellness in both adults and children, even though the long-term repercussions on mental health are not entirely understood (Villani & et al., 2020), (Midgley, Anderman, & Hicks, 1995) who are

being locked up. More consideration must be given to children living in institutions or low-income households to meet their requirements (Jiao & et al., 2020).

Online education has several advantages and disadvantages, including accessibility to all students, cost, time, and effort savings. The faculty's capacity to record lectures at the request of students is one advantage of online education. Teachers' thorough evaluations and planning for recording have a positive impact on teaching methods and procedures. To better understand the material, students can watch the lectures whenever they want. Reading, speaking, and writing impediments are difficulties in English language skills and other English courses. The teacher in linguistics classes must provide instruction on phonemes, allophones, morphemes, and other concepts to meet the needs of the pupils. Some pupils only sometimes have reliable access to the internet. The network affected certain children (Cao & et al., 2020).

The study aims to assess primary school-age children's psychological and behavioural problems during the Coronavirus Disease 2019 (COVID-19) and to find out the relationship between the psychological and behavioural problems with the types of school, class of children, and use of electronic devices before and after the pandemic) among participants

Methods

Study design:

A descriptive (cross-sectional) design was used for the period from December (2020) to October (2021).

Sample and sampling of the study:

Non-probability (Purposive) sample was used. A sample of 646 parents (fathers and mothers) who have children in Baghdad primary school was collected by an electronic form questionnaire sent to the parents via social media programs (Facebook, Instagram, Telegram and WhatsApp). The included participants were all parents of children in primary school who could read and write to fill out the study instrument. The excluded participants were the parents who refused to participate, could not read and write, and parents who did not have children in primary schools.

Data analysis :

Data are analyzed using the SPSS (Statistical Package for Social Sciences) version (20) application Statistical analysis system and the Excel application. The researcher used multiple tests to analyze the data: frequency and percentage, mean, and Chi-Square.

Power analysis (Study size):

Based on an anticipated effect size of 0.15, a designed statistical power of 0.95, predictors, and a probability level of 0.05, the minimum required sample size would be 227. By considering an attrition rate of 20%, it would be 45. So, the recommended sample size would be 272. The final sample size is 646.

Study instrument

A questionnaire was composed of three sections; Part I: deals with the parent's and children's demographic information (age, educational level, work, number of family members, caregiver's situation concerning Coronavirus Disease (COVID-19), education type, school year group, use of electronic devices before and after Coronavirus Disease (COVID-19), and child's activity before and after Coronavirus Disease (COVID-19). Part II: represents the measure of psychological and behavioural problems for children from the point of view of children followed by the researcher (Evren & et al., 2020) in their research prepared (Wolfinger, 2016). Then the researcher converts the instrument to a Google form to collect the data easily. The measure consists of 24 phases, each representing psychological or behavioural problems different from the other. The scale is designed according to the Likert method, and the five-way answer alternatives include (much less, somewhat less, same, somewhat more, much more), and scores (4, 3, 2, 1,0) are given according to the direction of the phrase. Thus, the highest score on the scale is (94), and the lowest grade is (0). The scale has demonstrated excellent internal consistency and reliability (Cronbach's alpha=.89)

Ethical considerations:

This research is funded by the researcher and is considered a single independent research project. The parents themselves must consent to the data collection. The children's or parent's names were left off the questionnaire out of respect for their privacy. Al-Bayan University approved the study's completion with the number (CON-HE-002).

Results:

The presentation of the findings of parents and children during the time of Corona Virus pandemic 2019 and the psychological and behavioural problems of these children from the parent's point of view.

Table 1. Distribution of Parents' Demographic Variables

	Characteristics	N	%
Parents	Father	202	31.3
	Mother	444	68.7
Age	18-28	91	14.1
	29-38	359	55.6
	39-48	172	26.6
	49-61	24	3.7
Educational level	Primary and Secondary	91	14.1
	Preparatory	164	25.4
	College	322	49.8
	Higher Education	69	10.7
Parents' situation Concerning COVID-19	Belong to a risk group	186	28.8
	People belonging to a risk group live with the participants	172	26.6
	Do not know anyone from risk groups	288	44.6
Family Members	3-5	384	59.4
	6-8	214	33.1
	9-11	48	7.5

N= frequency, %= percentage, risk groups= Any person working out of the home in contact with people infected or at risk of being infected.

Table (1) shows that the higher average age (29-38) is 55.6% of total parents, while the more significant number of samples educational level is 49.8% in college.

Table (2): Distribution of Child Demographic Variables

	Characteristics	N	%
Child Sleep	4-6 hour	47	7.3
	7-10 hour	484	74.9
	11-13 hour	115	17.8
Class	First	118	18.3
	Second	116	18.0
	Third	136	21.1
	Fourth	95	14.7
	Fifth	88	13.6
	Sixth	93	14.4
Age	6-9	403	62.4
	10-13	243	37.6
Learning place	Governmental	434	67.2
	Privet	142	22.0
	At home	70	10.9
Could the child spend some time out of the door?	Yes	380	58.8
	No	266	41.2

Table 2. shows the more significant number of children between 7-10 years in percentage 74.9%. The more significant number of children, 62.4%, their school is a governmental school, and 58.8% could spend time out of the door.

Table (3): Compare child data of using electronic devices and activity before and after COVID-19

Child Uses of Electronic Devices					
Hours\ day	**Before COVID-19**			**After COVID-19**	
	N	%		N	%
Less than 30 minutes	172	26.6		57	8.8
One hour	186	28.8		147	22.8
Two hours	136	21.1		134	20.7
Three hours	76	11.8		134	20.7
More than 4 hours	76	11.8		174	26.9
Child Activity (any activity without electronic devices)					
Hours\ day	**Before COVID-19**			**After COVID-19**	
	N	%		N	%
Less than 30 minutes	75	11.6		172	26.6
One hour	161	24.9		181	28.0
Two hours	184	28.5		111	17.2
Three hours	124	19.2		89	13.8
More than 4 hours	102	15.9		93	14.4

Table 3. shows that the use of electronic devices hours increase after covid-19, like in 4 hours increase in percentage to 26.9%. At the same time, child activity decreases to become the highest percentage of one hour\ day in 28.0 after covid-19.

Table (4). Distribution of Childs Psychological and Behavioral Problems:

Child Symptoms	Much less N(%)	Somewhat less N(%)	Same N(%)	Somewhat more N(%)	Much more N(%)
My child is worried	88 (13.6)	271 (42.0)	138 (21.4)	98 (15.2)	51 (7.9)
My child is restless	77 (11.9)	225 (34.8)	162(25.1)	112 (17.3)	70(10.8)
My child is anxious	101 (15.6)	252 (39.0)	131 (20.3)	114(17.6)	48(7.4)
My child is sad	105(16.3)	284 (44.0)	113 (17.5)	91 (14.1)	53 (8.2)
My child has nightmares	174 (26.9)	204 (31.6)	92 (14.2)	87 (13.5)	89 (13.8)
My child feels lonely	112 (17.3)	246 (38.1)	137 (21.2)	91 (14.1)	60 (9.3)
My child is uneasy	143 (22.1)	205 (31.7)	104 (16.1)	119 (18.4)	75 (11.6)
My child is nervous	53 (8.2)	192 (29.7)	129 (20.0)	126 (19.5)	146 (12.6)
My child argues with the rest of the family	44 (6.8)	190 (29.4)	134 (20.7)	104 (16.1)	164 (26.0)
My child is very quiet	90 (13.9)	191 (29.6)	143 (22.1)	131 (20.3)	91 (13.0)
My child cries easily	67 (10.4)	148 (22.9)	143 (22.1)	112 (17.3)	176 (27.3)
My child is angry	89 (9.4)	218 (33.7)	146 (22.6)	119 (18.4)	84 (13.0)
My child feels frustrated	119 (18.4)	232 (35.9)	119 (18.4)	92 (14.2)	84 (12.3)
My child is bored	49 (7.6)	186 (28.8)	25 (19.3)	114 (17.6)	172 (26.6)
My child is irritable	42 (6.5)	171 (26.5)	148 (22.9)	120 (18.6)	172 (25.6)
My child has no appetite	122 (18.9)	185 (28.6)	141 (21.8)	106 (16.4)	92 (14.3)
My child has difficulty concentrating	105 (16.3)	212 (32.8)	115 (17.8)	116 (18.0)	98 (15.1)
My child is afraid of COVID-19 infection	106 (16.4)	186 (28.8)	102 (15.8)	98 (15.2)	154 (23.8)
My child is very dependent on us	31 (4.8)	126 (19.5)	115 (17.8)	121 (18.7)	253 (39.2)
My child has behavioural problems	183 (28.3)	190 (29.4)	105 (16.3)	96 (14.9)	69 (11.1)
My child eats a lot	145 (22.4)	162 (25.1)	115 (17.8)	110 (17.0)	114 (17.6)
My child worries when one of us leaves the house	112 (17.3)	165 (25.5)	115 (17.8)	94 (14.6)	160 (24.7)
My child complains about homework a lot	34 (5.3)	159 (24.6)	121 (18.7)	127 (19.7)	205 (31.7)
My child is afraid to go to school	185 (28.6)	151 (23.4)	104 (16.1)	100 (15.5)	106 (16.4)

These results in table 4 show that some phrases have a high percentage in parents' responses compared with other phrases, for example, My child is sad (44% for somewhat less), My child is very dependent on us (39.2% for much more). My child complains about homework greatly (31.7% for much more).

Table (5). Distribution of the Sample according to Their Psychological and Behavioral Problems:

Psychological and behavioural problems scale	N	%
Mild (0-32)	151	23.4
Moderate (33-64)	346	53.6
Sever (65-96)	149	23.1
Total	646	100.0

Table 5. shows that 53.6% of the study sample have moderate psychological and behavioural problems.

Table (6). Relationship between Psychological and Behavioral Problems and Other Demographic Characteristics:

Psychological and behavioural problems / Variables		Mild	Moderate	Sever	Value	df	Significance (p≥0.05)
Age of child	**6-9 year**	96	209	98	1.398	2	0.497
	10-13 year	55	137	51			
Learning place	**Governmental**	97	243	94	11.373	6	0.08
	Private	44	64	34			
	At home	10	39	21			
The child uses of electronic devices after COVID-19	**Less than 30 m.**	17	26	14	36.058	8	**≥0.001***
	One hour	27	74	46			
	Two hours	15	76	43			
	Three hours	39	74	21			
	More than four h.	53	96	25			
Childes activity after COVID-19	**Less than 30 m.**	34	100	38	15.945	8	0.04*
	One hour	38	98	45			
	Two hours	21	65	25			
	Three hours	23	42	24			
	More than four h.	35	41	17			

***significant level at P value ≥0.05. Chi-square test use.**

Table 6 indicates a significant relationship between psychological and behavioural problems and child use of electronic devices and activity after COVID-19 (P=0.08 & **≥**0.001).

Discussion:

The main findings of this study are as follows, First, the children in this study were distributed like the general population but had a poorer psychological status. They found that, statistically, the use of electronic devices increased in comparison to the time before the pandemic. At the same time, the activities decreased, indicating that in terms of psychological health, they were affected. These differences were higher for externalizing problems than for internalizing problems from the impact of the Coronavirus Disease 2019 (COVID-19).

According to the parents' socio-demographic information, most of them were mothers and belonged to the young parent age group of 29 to 38. The majority of parents have completed their college education. 44.6 per cent of respondents to the question about how to deal with people who have the 2019 coronavirus disease (COVID-19) report not knowing anyone who has it, and other responses vary when it comes to knowing and handling sick individuals. The findings of (Mohammad, 2020), (Orgül & et al., 2017) support this. The study sample's variable on the parents' status concerning coronavirus disease

2019 (COVID-19) shows the parents' approaches to those at risk for coronavirus disease 2019 (COVID-19).

Since the study sample came from a primary school, children in all age groups between 6 and 12 could be seen in all primary school classrooms. Children's activity dropped while their usage of electronic gadgets grew both before and after the (COVID-19) epidemic. These findings, which are corroborated by (Orgül & et al., 2017), confirm the negative association between lockdown-related restrictions and children's lifestyle in the (UK) United Kingdom. Further investigation is required to determine whether the reported alterations enhanced the likelihood of long-term mental health issues and whether the degree of change in children's daily activities was related to the caregiver and child characteristics.

According to study findings, most children experience moderate behavioural and psychological issues. Also, children were more bored (44.2%), low (39.8%), frustrated (44.9%), irritable (67.1%), restless (53.2%), worried (52.4%), angry (54%), anxious (45.3%), and were more likely to argue with the rest of the family (26.8%) during the lockdown compared to the pre-COVID-19) period. This is supported by (Orgül, Kallitsoglou & Essau, 2020) , (Ghanamah & Eghbaria-Ghanamah, 2021) results and reflects the effect of E-learning during the Coronavirus disease 2019 (COVID-19) pandemic.

The study results show a significant relationship between psychological and behavioural problems and children's use of electronic devices and activities after the Coronavirus disease 2019 (COVID-19) pandemic, and the learning environment of children. This reflects the effect of e-learning during the pandemic.

Conclusion

Children used screens much more and engaged in physical activity, and napped significantly less during the lockdown. More than half of the caregivers claimed that the pandemic and E-learning were strongly related to their moderate to severe distress during the epidemic. Most parents experienced mild to severe psychological and behavioural issues with children during the epidemic. To avoid potential issues, it is crucial to keep an eye on youngsters' mental health. Such monitoring may be required to find at-risk children and treat them for children in protection or prevention systems. Additionally, the kid or adolescent must provide the information because the diverse perspectives of the caregivers could lead to misinterpretation.

Acknowledgements

We acknowledge all the volunteers who participated in the online survey to make this study possible.

Conflicts of Interest

The author declares no conflicts of interest.

References

- Adhanom Ghebreyesus, (2020). Addressing mental health needs: An integral part of COVID-19 response. *World Psychiatry*, pp. 19, 129–130. [CrossRef]

- Banerjee, D. & Rai, M. (2020). Social isolation in Covid-19: The impact of loneliness. Int. *J. Soc. Psychiatry*, pp. 66, 525–527. [CrossRef]

- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020), The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, 287, 2020, 112934. https://doi.org/10.1016/j.psychres. 112934

- Elena Bozzola , Carlo Cafarelli , Francesca Santamaria & Giovanni Corsello, (2022). The year 2021 in the COVID-19 pandemic in children, *Italian Journal of Pediatrics* (2022) 48:161,

- Gerber, M.; Frankfurt, S.; Contractor, A.; Oudshoorn, K.; Danger, P.& Brown, L. (2018), Influence of Multiple Traumatic Event Types on Mental Health Outcomes: Does Count Matter? *J. Psychopathol. Behav,* Assess, 40, 645–654. [CrossRef]

- Ghanamah Rafat & Eghbaria-Ghanamah Hazar, (2021). Impact of COVID-19 Pandemic on Behavioral and Emotional Aspects and Daily Routines of Arab Israeli Children, Int. *J. Environ. Res. Public Health*, 18, 2946.

- Harter, S., Whitesell, N. R., & Kowalski, P., (1992). Individual differences in the effects of educational transitions on young adolescents' perceptions of competence and motivational orientation. *American Educational Research Journal*, 29(4), 777–807. https://doi.org/10.3102/00028312029004777

- Ja'ashan Mohammed (2020). The Challenges and Prospects of Using E-learning among EFL Students in Bisha University, *Arab World English Journal* (AWEJ) Volume 11. Number 1, Pp.124–137.

- Jiao, W. Y., Wang, L. N., Liu, J., Fang, S. F., Jiao, F. Y., Pettoello-Mantovani, M., & Somekh, E. (2020). Behavioral and Emotional Disorders in Children during the COVID-19 Epidemic. *The Journal of Pediatrics*, 221, 264–266. e1. https://doi.org/10.1016/j.jpeds.2020.03.013

- Lee, J.-Y.; Kim, S.-W.& Kim, J.-M, (2020). The Impact of Community Disaster Trauma: A Focus on Emerging Research of PTSD and Other Mental Health Outcomes. *Chonnam Med., J*. 56, 99. [CrossRef]

- Lynch, M. M., (2004). Learning Online: A Guide to Success in the Virtual Classroom. Routledge.

- Midgley, C., Anderman, E., & Hicks, L., (1995). Differences between elementary and middle school teachers and students: A goal theory approach. *The Journal of Early Adolescence*, 15(1), 90– 113. https://doi.org/10.1177/0272431695015001006

- Mohammad Mahboob, (2020). Challenges of e-Learning during the COVID-19 Pandemic Experienced by EFL Learners, *Arab World English Journal* (AWEJ) Volume 11. Number 4 December 2020 Pp. 351-362 DOI: https://dx.doi.org/10.24093/awej/vol11no4.23

- Orgül Evren, Kallitsoglou Angeliki &. Essau Cecilia A, (2020). Psychological effects of the COVID-19 lockdown on children and families in the UK, *Revista de Psicología Clínicacon Niños y Adolescentes*. Vol. 7 nº. 3- Septiembre - pp 42-48.

- Villani A, Bozzola E, Siani P & Corsello G., (2020). The Italian pediatric society recommendations on children and adolescents extra-domestic activities during the SARS-CoV 2 emergency phase 2. *Ital J Pediatr*.;46:62.

- Wolfinger S. (2016). An exploratory case study of middle school student academic achievement in a fully online virtual school (Doctoral dissertation, Drexel University). Drexel University.

- World Health Organization, (2020). Critical Preparedness, Readiness and Response Actions for COVID-19—Interim Guidance; WHO: Geneva, Switzerland.

- World Health Organization, (2020). Novel Coronavirus (2019-nCoV): Situation Report-10; WHO: Geneva, Switzerland.