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## CHILDREN MENTAL HEALTH IN BANDUNG DURING COVID-19 PANDEMIC: A CROSS-SECTIONAL STUDY

RESA SEPTIANI PONTOH<sup>1,\*</sup>, SOLICHATUS ZAHROH<sup>2</sup>, ANTONY AKBAR<sup>1</sup>,

NABILA MAHARDIKA JIWANI<sup>1</sup>, NENENG SUNENSIH<sup>1</sup>

<sup>1</sup>Department of Statistics, Universitas Padjadjaran, Bandung, 45363, Indonesia

<sup>2</sup>Research and Development, Basmalah Corporation, Sumedang, 45376, Indonesia

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**Abstract:** A significant threat to mental health emerged in children during COVID-19. This study aims to identify the effects of COVID-19 on the mental health of children in Bandung while studying at home. The cross-sectional study was conducted online from August 28 to September 4, 2020, among 426 parents who had at least one child aged 5 to 15 years. Moreover, K-means clustering was used to group 4 categories based on mental health disturbances, and confirmation factors analysis was performed to identify the relationship between parenting behaviour and children's mental health, then assessed by the chi-square test. Children were divided into four groups, in which 52% had sub-threshold mental disorders (mean Major Depressive Disorder (MDD)-10; 2.45), 32% had a mild (mean MDD-10; 5.31), 13% had a moderate (mean MDD-10; 12.5), and 3% of the children had severe (mean MDD-10; 15.3). The percentage of mental disorders in children is higher in children with a higher educational level of the parents, families contracted COVID-19 and abnormal behaviour of the parents. This paper shows the low proportion of children suffering from mental disorders in Bandung during the pandemic. Applying psychological intervention strategies and

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\*Corresponding author

E-mail address: [resa.septiani@unpad.ac.id](mailto:resa.septiani@unpad.ac.id)

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improving household financial conditions, parenting literacy, childcare and job security can all help improve children's psychological status.

**Keywords:** Bandung; children; COVID-19; mental health; PSBB.

**2010 AMS Subject Classification:** 93A30, 62P10.

## 1. INTRODUCTION

In order to prevent the spread of COVID-19, the majority of the world's governments have suspended all public activities including closing schools [1]. Of course, this requires various strategic measures to ensure that the well-being of the people is preserved. The introduction of school closings is an attempt to protect children from the risk of contracting COVID-19 as the school environment is a meeting place for hundreds of students where diseases can spread quickly [2]. COVID-19 has resulted in children in almost all countries not being able to spend their time freely in their usual activities. Based on UNESCO statistics dated October 13, 2020, 34 countries closed schools during the COVID-19 pandemic (Figure 1), affecting 577,287,827 students, or 33% of all enrolled students [1]. Hence, this step in reducing COVID-19 cases in children is expected to be smooth and significant.

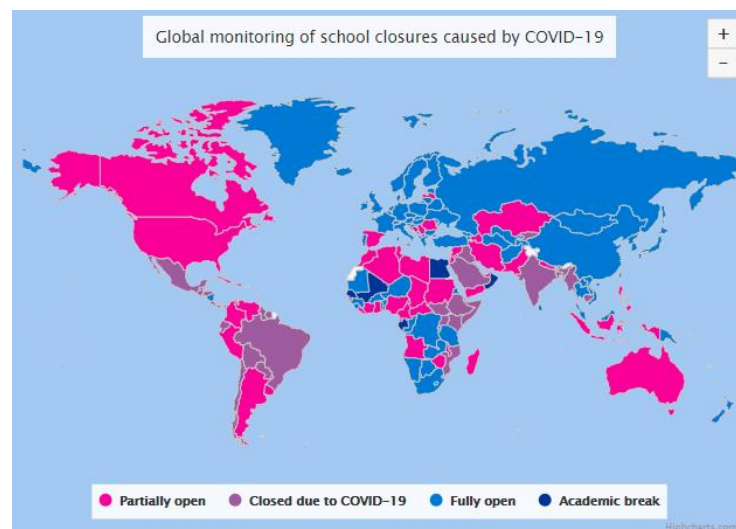


Figure 1. Global Monitoring of School Closures Caused by COVID-19  
as of October 13<sup>th</sup>, 2020 (Source: UNICEF)

To ensure that learning activities can be continued during school closings, distance learning is implemented by utilizing virtual learning resources [3, 4]. This of course requires a qualified facility so that its implementation can be carried out optimally. The effectiveness of distance learning methods depends on the available infrastructure and the expertise of teachers with distance learning tools [3]. For this reason, the government is trying to accelerate the distance learning preparation process followed by increasing the skills of teachers to adapt to all the tools that support this activity. Absolutely, the decision to suddenly close schools poses many challenges and difficulties, especially for students from low-income families, so there is a wide gap between high-income students and low-income students [4, 5]. Online learning requires students to have devices such as cellphones and even computers to be able to interact with their teachers. This absolutely feels hard for the less fortunate. In addition, they also need an internet connection to be able to access distance learning materials. Therefore, the government provides free quotas for students to ease the burden on parents.

During distance learning, students need good access to technology, a stable learning environment, and time for parents to support distance learning [6, 7]. However, statistics show that 1 in 7 children do not have internet access at home, with low-income students at twice as high a risk [8]. The pandemic situation has resulted in low-income people experiencing various related issues. This is followed by a lack of nutritious food, physical and mental health during the online learning process [5, 6].

In Indonesia, the Ministry of Education and Culture (MOEC) decided to implement all school activities through online / distance learning, also known as Learning from Home (LFH), which was implemented in mid-March 2020 based on Circular No. 4/2020. This policy aims to maintain the quality of the learning process during COVID-19 [9]. However, there are still many challenges when implementing distance learning in Indonesia. A survey of 4,000 high school students in Indonesia conducted by UNICEF on May 18-29, 2020 and June 5-8, 2020, found that 66% of students felt uncomfortable learning from home and 87% of students said they wanted to back to school immediately. Furthermore, 38% of students said they lacked teacher guidance

during distance learning, 35% of students said that internet access was poor, and 62% said they had support for internet quotas if distance learning is extended [10].

The gap in access to education during COVID-19 also occurs in Indonesia, especially experienced by students who are in rural areas and from low-income family. Based on Robandi (2020) [11], there are 3 problems when implementing LFH in Indonesia: 1) Not all students have facilities to support online schools. Based on BPS data (2019), the number of mobile device users by students in urban areas is 76.60%, higher than students in rural areas which are only 64.69%. 2) Not all regions in Indonesia have a good internet network. 4G signal is mostly concentrated on Java Island as the telecommunications companies prioritize urban areas [12]. The gap in access to internet networks is very disadvantageous to students from low-income family in rural areas outside Java. For example, students in Kenalan who have to study by the side of the road or students in North Sumatera who have to climb trees to get a stable signal [13]. 3) Limitation of internet quota. People from the middle to above class are easier to accommodate the need for online schools, as opposed to students in rural areas or students from poor families.

Distance learning also causes problems in education, one of which is a higher rate of absenteeism; studies show that in the absence of school, children lose skills and competencies [14, 15]. Extended school closures can lead to lower test scores, lower educational attainment, and decreased potential [16]. According to Nadiem Makarim, there are three main impacts of distance learning: the threat of dropping out of school, a decrease in learning achievement, and many studies have shown that distance learning affects children's psychology.

Studies have shown that quarantined children are more likely to have symptoms of depression and high stress [17, 18]. Restricted outdoor activities and lack of interaction with their peers also have a psychological impact on children. Lack of personal contact with classmates and friends and lack of personal space can damage children's overall health [19, 20]. Hence, children's mental health and behaviour are vulnerable to risks from the external environment that affect their development as they grow up [21]. Not only does children's health depend on nutritional and medical care, but also on proper parental care. Keeping children away from their parents during

this pandemic can lead to persistent psychiatric consequences including post-traumatic stress disorder, anxiety, psychosis, depression, crime, and even suicidal tendencies [22-25].

COVID-19 pandemic affects children's mental health in many countries around the world, such as Indonesia. According to the Association of Indonesian Psychiatric Specialists, mental health problems during COVID-19 in Indonesia include mental health issues, anxiety, depression and psychological trauma [26]. In order to promote people's mental health during the COVID-19 pandemic, the Indonesian Ministry of Health created Sejiwa “Sehat Jiwa”, which means “healthy mind” which is a counselling hotline to facilitate psychological counselling [27]. Given the possibility of this outbreak recurring in the future, children need to have the proper knowledge and understanding to deal with an outbreak or pandemic. It is very important to ensure that future generations can take adequate mitigation measures to reduce the risk of an epidemic or pandemic [28].

## **2. MATERIALS AND METHODS**

### **2.1 Participants**

This study was carried out on parents with children aged 5 to 15 who lived in the city of Bandung and the surrounding area from August 28, 2020, to September 4, 2020, after 5 months of the end of school and distance learning despite large scale social restrictions (Pembatasan Sosial Berskala Besar: PSBB) was declared by the governor of West Java at the end of April 2020. A non-probability sampling technique, namely purposive sampling is used to collect primary data from participants where parents who have at least one child aged 5-15 are asked to complete the survey by completing a questionnaire. The sample size formula used is as follows

$$n = \frac{z^2 \times p \times (1 - p)}{d^2}$$

Hence, the required sample size was 389. However, a total of 430 respondents completed the survey and after cleaning, the incomplete responses 426 participants were taken for final analysis.

### **2.2 Data collection**

Primary data were collected via online questionnaires as face-to-face interviews should be avoided. We sent google form links to parents randomly and the inclusion criteria had at least one child

between the ages of 5 and 15. The questionnaire consists of four sections, such as sociodemographic information (age, gender, educational level, place of residence, average monthly family income, knowledge of COVID-19 and information about family members/relatives/neighbours of respondents were positives COVID-19 or not), financial and lifestyle information parents, information about children's activities and attitudes towards children, and information about children's mental health. Participants were not given any economic motivation and anonymity was maintained to ensure data confidentiality. Prior approval will be obtained to participate in the survey and will be informed that participants can cancel the survey at any time without giving a reason. This study was conducted online in full compliance with the provisions of the Helsinki Declaration on Research on Human Participants.

### **2.3 Mental health assessment of the child**

The 47-item Revised Child Anxiety and Depression Scale (RCADS) for anxiety and depression in children [29] contain 10-item for measuring the Major Depressive Disorder (MDD) of children (children feel sad, feel that nothing makes them happy, sleep disorders, appetite disorders, no energy to do anything, feeling tired, unable to think, feeling worthless, unable to move, and feeling restless) and the 6-item for Generalized Anxiety Disorder (GAD) to measure the anxiety of children [30] (children are worried about something, complaints of the funny stomach, feeling afraid, their heart is beating fastly, worried that something bad is going to happen, and feels trembling). A "sleep problem scale" was confirmed by 6-item from the parent-reported for Child Behavior Checklist (CBCL), a questionnaire for assessing the behaviour / emotional problems of children aged 5 to 15 years [31] (having nightmares, sleep-deprived than most children, sleep more than most children, talking or walking while sleep, insomnia, and look tired). The MDD-10 and GAD-6 scales were rated at 4 points (0 = never, 1 = once a week, 2 = 2-4 times a week, and 3 = every day), giving a total score of 0-30 on MDD and 0-18 on GAD. In addition, SDS-6 uses a 3-point scale (0 = never; 1 = sometimes; 2 = often), which gives a total of 0-12. Higher values indicate higher rates of depression, anxiety, and sleep disorders. The reliability test is acceptable and the Cronbach alpha value is 0.68 with an interval of 0.62-0.73 using the bootstrap confidence

interval because the upper interval is greater than the acceptable value of 0.70, therefore the questionnaire is processed.

## 2.4 Statistical analysis

Descriptive statistics were first carried out to describe the basic demographic characteristics of the respondents. Secondly, K-mean clustering was applied to cluster the scores of depression, anxiety, and sleep disorders [32] in children. The chi-square test was conducted to measure the relationship between sociodemographic variables, parent-child behaviour, and children's mental health scores between clusters. Lastly, a confirmation factor analysis (CFA) was created to examine components related to children mental health where a structural model was developed using the identified mental health components of the child [33]. The significance level was set here to a p-value <0.05. Overall data analysis was performed using R.

## 3. RESULTS

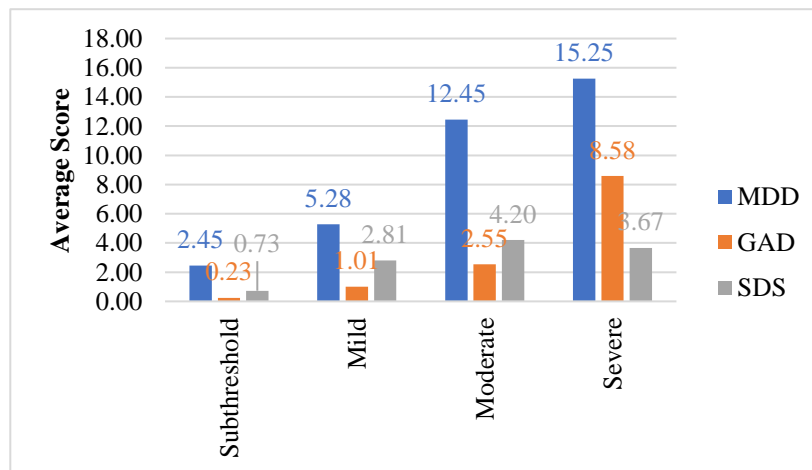
Of the respondents, 348 (81.7%) were women and 78 (18.3%) were men. The majority of respondents were 36-45 years old (58.5%), had undergraduate degrees (48.4%), and lived in the city centre (51.4%). A total of 54.9% of the respondents were still working during the pandemic, where 40.4% of the respondents still had to go to work, on the other hand, 44.1% of the respondents were under financial pressure due to the COVID-19 pandemic (Table 1).

**Table 1.** Socio-demographic of parents and children

Variables		N (%)
Sex	Female	348 (81.7%)
	Male	78 (18.3%)
Age	<25 years	29 (6.8%)
	26-35 years	95 (22.3%)
	36-45 years	249 (58.5%)
	46-55 years	50 (11.7%)
	>55 years	3 (0.7%)
Educational level	Primary school	15 (3.5%)
	Middle school	15 (3.5%)

	High school	65 (15.3%)
	Diploma	58 (13.6%)
	Bachelor	206 (48.4%)
	Master	54 (12.7%)
	PhD	13 (3.1%)
Place of living	City Center	219 (51.4%)
	Suburbs	191 (44.8%)
	Rural	16 (3.8%)
Do you have any job?	Yes	234 (54.9%)
	No	192 (45.1%)
Are you tensed about your financial condition?	Yes	188 (44.1%)
	No	238 (55.9%)
Still need to go to the workplace	Yes	172 (40.4%)
	No	254 (59.6%)

The score of depression, anxiety, and sleeping disorder are grouping using k-means clustering with 4 groups, namely subthreshold, mild, moderate, and severe. Furthermore, the average score of each group and each variable are calculated.



**Figure 2.** The average score of depression, anxiety, and sleeping disorder among 4 clusters

Depression (MDD), anxiety (GAD), and sleep disorder (SDS) scores in children were divided into 4 groups (sub-threshold, mild, moderate, and severe) using k-mean clustering. The results showed that 52% of the children had mental health problems below the threshold (mean depression: 2.45, anxiety: 0.224, sleep disorders: 0.731), 32% had mild disorders (mean depression:



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5.31, anxiety: 1.01, sleep disorders: 2.82), 13% had moderate disorders (mean depression: 12.5, anxiety: 2.55 and sleep disorders: 4.2) and 3% suffered from severe disorders (mean depression: 15.3, anxiety: 8.58 and sleep disorder: 3.67). Overall, the averages for depression, anxiety, and sleep disorders were 5.02, 1.01, and 1.93, respectively. Using the chi-square test, significant differences were found in scores for depression, anxiety, and sleep disorders between the four groups, as shown in Table 2.

**Table 2.** Grouping of cluster analysis

Variable		Subthreshold	Mild	Moderate	Severe	Overall	P-value
Number (Percentages)		223 (52%)	136 (32%)	55 (13%)	12 (3%)	426 (100%)	
MDD	Mean (SD)	2.45 (2.32)	5.31 (2.84)	12.5 (4.48)	15.3 (7.21)	5.02 (4.78)	0.001
	Median [Min, Max]	2.00 [0, 11.0]	5.00 [0, 13.0]	12.0 [3.00, 28.0]	14.5 [6.00, 29.0]	4.00 [0, 29.0]	
GAD	Mean (SD)	0.22 (0.540)	1.01 (1.18)	2.55 (1.54)	8.58 (3.40)	1.01 (1.86)	0.001
	Median [Min, Max]	0 [0, 3.00]	1.00 [0, 5.00]	3.00 [0, 5.00]	7.00 [6.00, 18.0]	0 [0, 18.0]	
SDS	Mean (SD)	0.73 (0.691)	2.82 (0.99)	4.20 (1.60)	3.67 (2.15)	1.93 (1.66)	0.001
	Median [Min, Max]	1.00 [0, 2.00]	3.00 [1.00, 6.00]	4.00 [0, 7.00]	4.00 [0, 8.00]	2.00 [0, 8.00]	

**Table 3.** Characteristics among different group of clusters

Variable		Subthreshold (N=223)	Mild (N=136)	Moderate (N=55)	Severe (N=12)	Overall (N=426)	P-value
Sex	Female	187 (83.9%)	106 (77.9%)	46 (83.6%)	9 (75.0%)	348 (81.7%)	0.79
	Male	36 (16.1%)	30 (22.1%)	9 (16.4%)	3 (25.0%)	78 (18.3%)	
Age	<25 years	16 (7.2%)	12 (8.8%)	0 (0%)	1 (8.3%)	29 (6.8%)	0.05
	26-35 years	55 (24.7%)	27 (19.9%)	10 (18.2%)	3 (25.0%)	95 (22.3%)	

	36-45 years	124 (55.6%)	78 (57.4%)	40 (72.7%)	7 (58.3%)	249 (58.5%)	
	46-55 years	25 (11.2%)	19 (14.0%)	5 (9.1%)	1 (8.3%)	50 (11.7%)	
	>55 years	3 (1.3%)	0 (0%)	0 (0%)	0 (0%)	3 (0.7%)	
Educational level	Primary school	8 (3.6%)	5 (3.7%)	2 (3.6%)	0 (0%)	15 (3.5%)	0.04
	Middle school	10 (4.5%)	3 (2.2%)	1 (1.8%)	1 (8.3%)	15 (3.5%)	
	High school	34 (15.2%)	23 (16.9%)	6 (10.9%)	2 (16.7%)	65 (15.3%)	
	Diploma	33 (14.8%)	13 (9.6%)	9 (16.4%)	3 (25.0%)	58 (13.6%)	
	Bachelor	101 (45.3%)	74 (54.4%)	27 (49.1%)	4 (33.3%)	206 (48.4%)	
	Master	27 (12.1%)	17 (12.5%)	8 (14.5%)	2 (16.7%)	54 (12.7%)	
	PhD	10 (4.5%)	1 (0.7%)	2 (3.6%)	0 (0%)	13 (3.1%)	
Place of living	City Center	117 (52.5%)	69 (50.7%)	28 (50.9%)	5 (41.7%)	219 (51.4%)	0.03
	Suburbs	101 (45.3%)	60 (44.1%)	23 (41.8%)	7 (58.3%)	191 (44.8%)	
	Rural	5 (2.2%)	7 (5.1%)	4 (7.3%)	0 (0%)	16 (3.8%)	
Relatives/neighbor infected with COVID-19	No	199 (89.2%)	109 (80.1%)	51 (92.7%)	10 (83.3%)	369 (86.6%)	0.86
	Yes	24 (10.8%)	27 (19.9%)	4 (7.3%)	2 (16.7%)	57 (13.4%)	
Average family monthly income	<Rp 1,000,000	12 (5.4%)	4 (2.9%)	5 (9.1%)	2 (16.7%)	23 (5.4%)	0.12
	Rp 1,000,000-5,000,000	65 (29.1%)	52 (38.2%)	20 (36.4%)	5 (41.7%)	142 (33.3%)	
	Rp 5,000,001-Rp 10,000,000	45 (20.2%)	35 (25.7%)	11 (20.0%)	2 (16.7%)	93 (21.8%)	
	Rp 10,000,001-Rp 15,000,000	40 (17.9%)	22 (16.2%)	8 (14.5%)	1 (8.3%)	71 (16.7%)	
	>Rp 15,000,000	61 (27.4%)	23 (16.9%)	11 (20.0%)	2 (16.7%)	97 (22.8%)	

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Still need to go to the workplace	No	136 (61.0%)	78 (57.4%)	33 (60.0%)	7 (58.3%)	254 (59.6%)	0.001
	Yes	87 (39.0%)	58 (42.6%)	22 (40.0%)	5 (41.7%)	172 (40.4%)	
Any chance of losing a job?	No	173 (77.6%)	111 (81.6%)	39 (70.9%)	9 (75.0%)	332 (77.9%)	< 0.0001
	Yes	50 (22.4%)	25 (18.4%)	16 (29.1%)	3 (25.0%)	94 (22.1%)	
Are you feel bored	No	96 (43.0%)	40 (29.4%)	15 (27.3%)	4 (33.3%)	155 (36.4%)	0.008
	Yes	127 (57.0%)	96 (70.6%)	40 (72.7%)	8 (66.7%)	271 (63.6%)	
Are you a smoker	No	212 (95.1%)	126 (92.6%)	49 (89.1%)	11 (91.7%)	398 (93.4%)	< 0.0001
	Yes	11 (4.9%)	10 (7.4%)	6 (10.9%)	1 (8.3%)	28 (6.6%)	
How many hours did child watch cartoon in a day?	<2 hours	111 (49.8%)	67 (49.3%)	25 (45.5%)	4 (33.3%)	207 (48.6%)	< 0.0001
	2-4 hours	75 (33.6%)	46 (33.8%)	13 (23.6%)	1 (8.3%)	135 (31.7%)	
	4-6 hours	16 (7.2%)	15 (11.0%)	10 (18.2%)	3 (25.0%)	44 (10.3%)	
	6-8 hours	17 (7.6%)	7 (5.1%)	6 (10.9%)	3 (25.0%)	33 (7.7%)	
	>8 hours	4 (1.8%)	1 (0.7%)	1 (1.8%)	1 (8.3%)	7 (1.6%)	
How many hours child play gadget in a day?	<2 hours	91 (40.8%)	55 (40.4%)	14 (25.5%)	2 (16.7%)	162 (38.0%)	< 0.0001
	2-4 hours	67 (30.0%)	43 (31.6%)	17 (30.9%)	3 (25.0%)	130 (30.5%)	
	4-6 hours	36 (16.1%)	25 (18.4%)	10 (18.2%)	3 (25.0%)	74 (17.4%)	
	6-8 hours	20 (9.0%)	8 (5.9%)	9 (16.4%)	1 (8.3%)	38 (8.9%)	
	>8 hours	9 (4.0%)	5 (3.7%)	5 (9.1%)	3 (25.0%)	22 (5.2%)	
Do your children fight with each other?	No	127 (57.0%)	67 (49.3%)	24 (43.6%)	4 (33.3%)	222 (52.1%)	< 0.0001
	Yes	96 (43.0%)	69 (50.7%)	31 (56.4%)	8 (66.7%)	204 (47.9%)	
Did you take	No	19	15	8 (14.5%)	2	44	< 0.0001

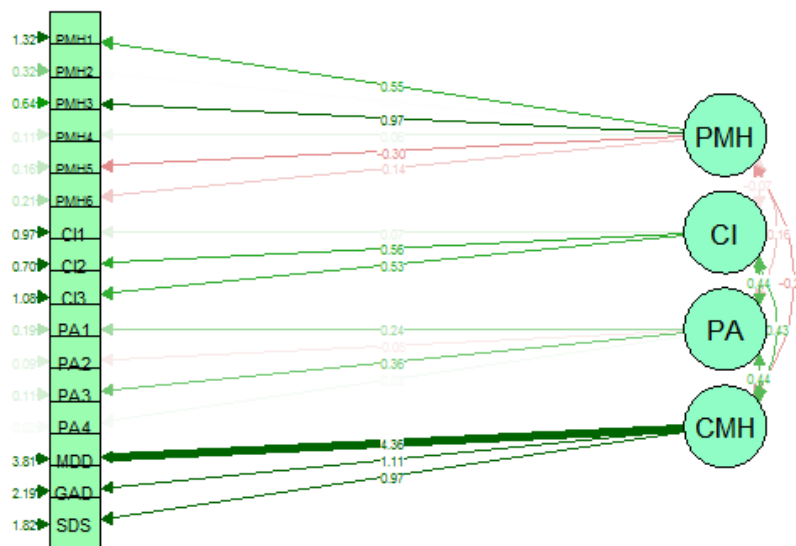
actions to keep him/her busy during quarantine?		(8.5%)	(11.0%)		(16.7%)	(10.3%)	
	Yes	204 (91.5%)	121 (89.0%)	47 (85.5%)	10 (83.3%)	382 (89.7%)	
Do you think your children are acting normal?	No	131 (58.7%)	63 (46.3%)	31 (56.4%)	7 (58.3%)	232 (54.5%)	< 0.0001
	Yes	92 (41.3%)	73 (53.7%)	24 (43.6%)	5 (41.7%)	194 (45.5%)	
Did your children complain about your busy work?	No	165 (74.0%)	90 (66.2%)	21 (38.2%)	5 (41.7%)	281 (66.0%)	< 0.0001
	Yes	58 (26.0%)	46 (33.8%)	34 (61.8%)	7 (58.3%)	145 (34.0%)	
Do you call your children by bad things (lazy, dumb, etc)?	No	213 (95.5%)	132 (97.1%)	46 (83.6%)	11 (91.7%)	402 (94.4%)	< 0.0001
	Yes	10 (4.5%)	4 (2.9%)	9 (16.4%)	1 (8.3%)	24 (5.6%)	
Do you threaten your children that you will punish for improbity?	No	131 (58.7%)	65 (47.8%)	23 (41.8%)	5 (41.7%)	224 (52.6%)	< 0.0001
	Yes	92 (41.3%)	71 (52.2%)	32 (58.2%)	7 (58.3%)	202 (47.4%)	
Did you scream to your children?	No	153 (68.6%)	75 (55.1%)	19 (34.5%)	4 (33.3%)	251 (58.9%)	< 0.0001
	Yes	70 (31.4%)	61 (44.9%)	36 (65.5%)	8 (66.7%)	175 (41.1%)	
Did you hit your children using an object?	No	222 (99.6%)	129 (94.9%)	53 (96.4%)	11 (91.7%)	415 (97.4%)	0.0002
	Yes	1 (0.4%)	7 (5.1%)	2 (3.6%)	1 (8.3%)	11 (2.6%)	
Which one are the most common children abuse?	Emotional abuse	178 (79.8%)	121 (89.0%)	49 (89.1%)	10 (83.3%)	358 (84.0%)	< 0.0001
	Family violence	4 (1.8%)	4 (2.9%)	1 (1.8%)	0 (0%)	9 (2.1%)	
	Neglect abuse	34 (15.2%)	9 (6.6%)	3 (5.5%)	2 (16.7%)	48 (11.3%)	
	Physical abuse	6 (2.7%)	2 (1.5%)	2 (3.6%)	0 (0%)	10 (2.3%)	
	Sexual abuse	1 (0.4%)	0 (0%)	0 (0%)	0 (0%)	1 (0.2%)	

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The chi-square test was used to test significant differences in various traits between the four groups. The results of the study showed that there were no significant differences between the four groups in terms of gender, age of parents, monthly income, and relatives/neighbours of children who were positive or not affected by COVID-19. However, there were significant differences in parents' educational level, place of residence, between the four groups. In the group of the severely disabled, most parents of children have completed undergraduate education (33.3%). The scores for depression, anxiety, and insomnia were higher in children whose families lived in the suburbs (58.3%) (Table 3). The results also show that there is a significant difference between parents' needs to go to work or not, the possibility of losing their job, and smoking habits between the four groups, thereby the higher number of parents have to leave going to work (40.4%), have smoking habits (6.6%), and the probability of losing their job (22.1%) the higher values for depression, anxiety and sleep disorders in children. It was also found that the score is higher for children who often fight each other, children who watch cartoons and play smartphones or other electronic devices 2-4 hours each day with, children whose parents take no action to keep them busy, children who complain about their parents occupy themselves, children whose parents call them by names they (children) do not like, children whose parents threaten to punish them, children whose parents they (children) during scream the quarantine and beat home time (Table 3).

The mean values for depression, anxiety and sleeping disorder according to the different groups are shown in Figure 2, and it can be seen that the mean values for depression, anxiety and sleeping disorder of children gradually increased from the sub-threshold group to the group of severe disorders. In CFA, it is believed that there are four latent variables. The first variable related to parental mental health includes the educational level of the respondents, place of residence, average family income, relatives/neighbours suspected of having symptoms, financial pressures, and the feeling of staying at home during this home quarantine. The second variable is information about participating children, consisting of the number of children at ages 5-15 in the family and how long the children watch cartoons and play devices. The third variable is the parents' attitudes towards their children and their children's activities during the quarantine period at home consist of children fighting more, threatening children, yelling at children and beating children. The fourth

variable in children's mental health, which are parents' mental health (PMH), children information (CI), parents' attitude (PA), and children mental health (CMH) work on the values for depression, anxiety, and sleeping disorder in children. A first-order CFA model was developed to examine the relationship between these four factors. The path coefficients that relate elements to factors represent factor loads, and standard coefficients can also be interpreted. The chi-square test on the fitting model gives a value of 86.571 with degrees of freedom = 48 and a p-value of 0.001. The results of the chi-square test, RMSEA = 0.043, CFI = 0.942, and TLI = 0.920, show that the model fit with the data, thus it can be concluded that the assumed model is correct. The results showed that children's mental health is influenced by parents' mental health and attitudes towards children. The results are shown in Figure 3 and Table 4.



**Figure 3.** A path diagram of Confirmatory Factor Analysis representing factors of child mental health

**Table 4.** Inter-correlation and variance among latent variables

	Estimate	Std.Err	z-value	P(> z )
PMH-CI	-0.132	0.09	-1.468	0.142
PMH-PA	-0.177	0.074	-2.395	0.017
PMH-CMH	-0.328	0.06	-5.454	0
CI-PA	0.424	0.097	4.385	0
CI-CMH	0.424	0.08	5.29	0
PA-CMH	0.433	0.065	6.702	0

Children mental health was highly correlated to the parental attitude toward children means that the children mental health are affected by parental mental health as well as parents' attitudes towards the children.

#### **4. DISCUSSIONS**

Mental health is an important part of any country but is largely neglected, especially in low and middle-income countries [34]. Based on basic research Riskesdas in 2018 [35], psychological-emotional disorders in adolescence in Indonesia have increased by 3.8% since 2013. Hence, psychologists are reminding parents to maintain the mental health of children during this pandemic. Bandung is a huge city in Indonesia, depending on the region, with a huge population. Recently, in July 2019, there were 91 reports of mental disorders in children aged 5 to 12 years. As a preventive and curative measure to prevent mental disorders, Puskesmas offer psychological consultation. Most of the respondents in this study were between 26 and 45 years old and most lived in the city centre and the majority were female (Table 1). In this study, children's mental health scores (depression, anxiety, and sleeping disorder) were divided into four groups: sub-threshold, mild, moderate, and severe. The highest percentage of children had sub-threshold (52%), 32% had mild, 13% had moderate, and 3% had severe disturbance (Table 2). Parents' level of education where to live still has to go to their parents' workplace, the possibility of losing their parents' job, parents' smoking habits, parents' boredom, hours children spend watching cartoons and playing games in a gadget, children quarrels, busyness in other jobs, children's behaviour, children's complaints about parents' busyness, abnormal parental behaviour towards children (call dumb, threatening, screaming, beating children) and parents' knowledge of child abuse were all significantly related with the psychological status of the child (Table 3). Children who live with their parents in the city centre are more prone to mental health problems than children in rural areas. Perhaps the reason for this scenario is because social distancing is perfectly maintained in the city centre and children are forced to stay at home [36]. On the other hand, children in rural areas can move around freely and play with their friends [37], they also encompassed by animals and bacteria develop stronger immune systems and may have a lower risk of developing mental

illness than urban residents without pets [38]. Usually educated parents in Bandung stay busy with their work compared to those who were not even during this PSBB period since they have a fixed-job. As a result, they might not set the timing for communicating with the children according to their needs.

If the mother's working hours are longer, the risk increases that children between the ages of one and five will suffer from psychological stress as young adults [39-40]. Longer periods of working at part-time work reduce children's educational attainment and increase the mental stress of children. However, this effect is smaller compared to full-time employed mothers [41]. This study also found that children of high-income parents were more likely to suffer from mental disorders. Parents who have yet to go to work and have the possibility of losing their jobs tend to see an increase in mental disorders in their children. In addition, children with bored parents are prone to mental disorders (Table 3). The pressure that parents bring home from occupations can affect their parenting skills, and it is feared that it will disrupt children's lives and the pressure might affect children's mental illness. Unfortunately, low-income parents are most likely to work in stressful, low-quality jobs characterized by low wages, little autonomy, inflexible working hours, and little or no benefits [42-43].

It is known that there is a close correlation between parents' smoking habits and children's developmental behaviour. Since smoking is also linked to sadness, there are many unanswered questions about the relationship between this problem and children's mental health [44]. The results of this study also show that parental depression and smoking habits are also related to children's mental health (Table 3). The levels of mental depression in busy children were relatively low than in children who were not busy (Table 3). When children are involved in busyness or encourage daily exercise, they can reduce depression [45]. There were fewer children with mental disorders who acted normally than in other children whose rate gradually increased from mild to severe mental disorders. One thing that indicates depression in children is when the child's sadness interferes with social activities or daily life [46-47]. Children who struggle with others and are threatened, yelled at and beaten by their parents have an impairment of their mental health because



the behaviour of the parents is adapted to the mental health of the child [46]. Parents who threaten, yell, or hit their children suffer from depression and parental depressive symptoms therefore will affect the mental health of the children [47-49].

## **5. LIMITATIONS**

This study has several limitations. First, interviews are not conducted face-to-face, while self-reporting has certain limitations compared to face-to-face interviews. Second, the effectiveness of mental health services was not recorded as a cross-sectional study in this study. After all, large-scale sampling is not possible.

## **6. CONCLUSIONS**

The results show that most children did not experience mental health problems during distance learning due to the pandemic. Parents' ability to prevent their emotional pain or manifestations of depression from interfering with their role as parents can be a significant source of resilience for their children. Vulnerable groups for this study are children with urban, well-educated parents, high and low family incomes, smoking status (yes), parental depressive symptoms (threats, screaming, beating, etc.), and abnormal child behaviour. The implementation of suitable psychological intervention strategies and the improvement of the financial situation of the households, the literacy of the parents, the good care of the children as well as the increase of the job security and the flexibility of the parents can help to improve the mental status of the children in Bandung.

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## **CONFLICT OF INTERESTS**

The authors declare that there is no conflict of interests.

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