[Preliminary Report] CRNA Collaborative Research for Exploring Factors Nurturing "Happy and Resilient" Children among Asian Countries

1. Aim of the research

The aim of this research is to explore the environment for nurturing "Happy and Resilient" children in the time of COVID-19 from the three environmental perspectives of families, childcare facilities/schools, and government/society.

Two years have passed since the outbreak of SARS-Cov2 starting with the first case in Wuhan, China. The COVID-19 pandemic has still been raging all over the world, and threatening the everyday life and learning of children. As a hypothesis to attain the "well-being of children" under such circumstances, we considered "Happy and Resilient" was an important factor.

Resilience was originally a technical term of physics indicating the ability of material that enable it to retain its original form after deformation like elasticity. It was then used as a psychological term indicating the process or capacity to endure or tolerate hardship that threaten people (Masten, Best, & Gramezy, 1990). According to Dr. Ungar, a director of the Resilience Research Centre in Canada, where the Child and Youth Resilience Measure (CYRM-R) was established, the term "Resilience" is defined as follows:

" In the context of exposure to significant adversity, resilience is both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their well-being, and their capacity individually and collectively to negotiate for these resources to be provided in culturally meaningful ways." (Ungar)

This definition implies that resilience is a concept encompassing both the individuals and the environments that encircle the individuals.

Meanwhile, "happiness" is a concept directly linked to "children's well-being".

So we have defined the ultimate image of children who are capable of enjoying and maintaining their happiness even during the time of hardship such as the current COVID-19 pandemic would be "Happy and Resilient."

It is clear from Bronfenbrenner's ecological system theory that the surrounding environment has a great influence on the growth of children, and in this study, we would like to examine the relevance of environmental factors surrounding children and the nurturing of "Happy and Resilient" children.

We are convinced that exploring the environments fostering children's "Happy and Resilient"

development will surely give us a clue to understand the better way to interact with children during this unpredictable COVID-19 pandemic. It is also expected that even after the cessation of the pandemic, what we have learned from the survey will render children the capability to thrive this rapidly changing and unforeseeable time.

It is necessary to adopt appropriate indicators of happiness and resilience for the evaluation of our research that seeks environmental factors fostering "Happy and Resilient" children. We have employed the KINDL scale as the measure to monitor children's happiness. KINDL was developed by Ravens-Siebere & Bullinger (1998) for the ample measurement of children's QOL(Quality of Life), a concept virtually identical to the concept of well-being or happiness. For the measurement of resilience, we have employed the CYRM-R scale developed by the Resilience Research Center in Canada. Both scales are composed of simple questions and easy to administer.

This survey will be conducted as a collaborative survey among the board members of CRNA (Child Research Network Asia) from 8 countries (Japan, Mainland China, Indonesia, Malaysia, Philippines, Singapore, Taiwan, Thailand). This parallelly conducting survey will enable us to compare the results among the participating countries, and studying the similarities and differences would give us great chance to deepen our mutual understanding through discussions.

2. Theme of the Research, Research Questions, and perspectives of the analyses

Based on the above research plan, we have set up the main theme of the research, and generated research questions as well as the research perspectives as shown below.

Grand Theme:
Well-Being of Children in the Time of COVID-19

Research Theme:
Nurturing "Happy and Resilient" Children -From three perspectives of the environment surrounding children (families/childcare facilities, schools/government, society)

Research Questions:
1) What are the factors that determine children's happiness and resilience in the time of COVID-19? We will clarify this through the three environmental perspectives of families, childcare facilities/schools, and governments/society.
2) Is a child's resilience related to his/her happiness (well-being)?

Analytical topics (perspectives):

1) Association with the availability and amount of support for childrearing from family members and domestic workers, etc. and from childcare facilities and schools, and children's resilience and happiness

2) Association with mothers' attitudes and perceptions, awareness (of childrearing/work) and children's resilience and happiness

3) Association with the use of digital devices in childrearing and children's resilience and happiness

4) Association with children's daily life and play and children's resilience and happiness

As described above, the dependent (outcome) variables of the research are children's resilience and happiness (also known as QOL). The independent variables representing children's 3 environmental strata namely families, childcare facilities and schools, and governments and society include mother's parenting attitude, mother's perception of childrearing, mother's anxiety, spousal supports, children's use of digital media, parental involvement and concerns in children's digital media use, children's everyday life and play, support from childcare facilities and schools. Demographic data such as the subject children's gender, number of siblings, annual household income, parents' educational levels, and the situation of the COVID-19 pandemic are also included.

In order to envisage the association of these variables with the dependent variables, we have proposed the above mentioned 4 main analytical perspectives.

Country reports that follow this introductory section have been formulated in accordance with these perspectives.

3. General framework of the survey

1) Overview of the survey

Subjects: Mothers with children aged 5 attending kindergarten (daycare center), or aged 7 attending elementary school

Participating Countries/Regions: Japan, Mainland China, Indonesia, Malaysia, Philippines, Singapore, Taiwan, Thailand

Number of subjects: 1,973 mothers of 5-year-olds（8 countries）/1,372 mothers of 7-year-olds（6 countries except for Mainland China and Singapore）

Survey method: Questionnaire survey (Online/Paper)

Survey Period: August-November 2021

2) Overview of the survey in 8 countries

The survey period and method, the number of valid responses, and children's gender are summarized by country as follows:

Table1: Overview of the survey in 8 countries

Participating countries	Japan				Mainland China				Philippines				Malaysia			
Period	Sept. - Nov. 2021				Sept. 2021				Aug. - Sept. 2021				Sept. 2021			
Method	Online/Paper				Online				Online				Online			
Number of valid responses	5YO mothers		7YO mothers		5YO mothers		7YO mothers		5YO mothers		7YO mothers		5YO mothers		7YO mothers	
	246		114		264				218		202		250		250	
*Gender of the child (%)	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	45.1	54.9	50.9	48.2	52.3	47.7			46.3	53.2	47.0	53.0	47.2	52.8	50.4	49.6

Participating countries	Taiwan				Indonesia				Singapore				Thailand			
Period	Sept. 2021				Sept. 2021				Sept. - Nov. 2021				Oct. 2021			
Method	Paper				Online				Online/Paper				Online			
Number of valid responses	5YO mothers		7YO mothers		5YO mothers		7YO mothers		5YO mothers		7YO mothers		5YO mothers		7YO mothers	
	260		251		416		335		136				183		220	
*Gender of the child (%)	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	48.8	50.0	50.2	49.0	50.0	50.0	51.6	47.8	50.7	49.3			50.8	49.2	51.8	48.2

*For the question asking the gender of the child, there were a few respondents who provided no answers.

4. Results of descriptive analysis regarding basic attributes

The responders of the present survey were mothers of either 5-year-old children or 7-year-old children. Most of the children (more than 70%) were either the first-born or the second born children. There were significant differences among countries as to the status of attendance to the childcare facilities or schools. Among 5-year-old children, almost all (97.8~100%) children in Japan, China, Taiwan and Singapore were attending childcare facilities, while in the Philippines and Malaysia children were almost equally divided into "Attends the childcare facility/school" and "Hybrid style of attending childcare facility/school and online classes." In Indonesia and Thailand, children were divided into "Does not attend childcare facility/school" and "Hybrid style of attending childcare facility/school and

online classes." Among 7-year-old children, children were regularly attending school in Japan and Taiwan, while in Malaysia and Indonesia, children were divided into "Attends the childcare facility/school" and "Hybrid style of attending childcare facility/school and online classes." In the Philippines, almost all (93.1%) were under the "Hybrid style of attending childcare facility/school and online classes." In Thailand, half of the children were not attending while the rest were under the "Hybrid style of attending childcare facility/school and online classes" (see Table 2).

Table 2: Current Childcare Facility/School Attendance

	5-year-olds							
	Japan	China	Phillippines	Malaysia	Taiwan	Indonesia	Singapore	Thailand
	246	264	218	250	260	416	136	183
	%	%	%	%	%	%	%	%
1 Attends the childcare facility/school	99.6	99.2	47.2	30.8	100.0	13.0	97.8	4.9
2 Hybrid stlye of attending childcare facility/school and online classes	0.4	0.4	51.8	66.0	0.0	47.1	1.5	62.3
3 Does not attend childcare facility/school	0.0	0.4	0.9	3.2	0.0	39.7	0.7	32.8
4 Not enrolled in any childcare facilities/schools	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
No answer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

	7-year-olds							
	Japan	China	Phillippines	Malaysia	Taiwan	Indonesia	Singapore	Thailand
	114	0	202	250	251	335	0	220
	%	%	%	%	%	%	%	%
1 Attends the childcare facility/school	99.1		4.5	26.8	94.0	41.2		10.5
2 Hybrid stlye of attending childcare facility/school and online classes	0.0		93.1	71.2	2.4	53.7		54.1
3 Does not attend childcare facility/school	0.9		2.0	2.0	0.8	0.3		34.5
4 Not enrolled in any childcare facilities/schools	0.0		0.0	0.0	0.0	1.5		0.0
No answer	0.0		0.5	0.0	2.8	3.3		0.9
total	100.0	0.0	100.0	100.0	100.0	100.0	0.0	100.0

With respect to the status of mothers' occupation, mothers of 5-year-old children in Japan, China, Philippines, Singapore and Thailand were mostly (76.0 - 95.9%) employed, while in Malaysia, Taiwan, and Indonesia, the proportions of employed mothers ranged between 45.0% to 62.7%. Among mothers of 7-year-old children, more than half (53.2 - 75.0%) were employed in Japan, the Philippines, Malaysia, Taiwan, and in Thailand, while most (71%) of mothers in Indonesia were not employed. Most of the fathers/partners were employed.

Mothers of 5-year-old children had mostly (54.6%~93.6%) completed higher education in seven countries except in Malaysia where 60% of mothers completed secondary education. Among mothers of 7-year-old children, a high proportion of mothers (55.9% - 83.3%) from the four countries excluding Malaysia and Indonesia had completed higher education.   In Malaysia and Indonesia the proportions of mothers who completed secondary education were most prevalent (60%). A similar tendency was observed among the fathers/partners.

Substantial differences were found in the household incomes. Among families of 5-year-old children,

the middle range income was most prevalent (96.3%) in the Philippines, while the lower range income was most common (76.0%) in Malaysia. A far greater proportion (43.3%) of the mothers in Indonesia answered "Do not know/do not want to answer". In other countries, the household income levels were rather evenly distributed. Similar results were seen among families of 7-year-old children.

Since the survey was conducted during the pandemic period of COVID-19, we incorporated into the questionnaire several relevant questions.

Income change due to the pandemic was not present in about 63% of the families in Japan, while 60 % of the mothers reported a decline of income in Indonesia and Thailand. In other countries, responses were equally divided into "decline" and "no change." With respect to the rates of vaccination coverage, more than 70% of the mothers were vaccinated in most of the countries except for Taiwan where only a half of the mothers were vaccinated.

(Junko Ogawa)

5. Correlational analysis of the variables

In this section, we will present the global views of the data from all the 8 participating countries.

(1) Inter-country comparison of Resilience (CYRM-R) and happiness(QOL) (KINDL) of children

The main aim of the survey is not to compare the status of children's Resilience or QOL among countries, but to explore the relation among the variables associated with children's Resilience and QOL, and thus elucidating the contributing factors to promote children's Resilience and QOL. It is, however, meaningful to observe how dispersed the current situation (scores) of Resilience and QOL are among the eight countries in Asia.

Fig. 1 shows the comparable graphs of QOL and Resilience of 5-year-old children among 8 countries. As you see in the figure, there are not much difference in QOL among countries, except for the somewhat lower Resilience in Malaysian children probably reflecting the difficult situation in Malaysia since the survey was conducted during the lockdown of the cities.
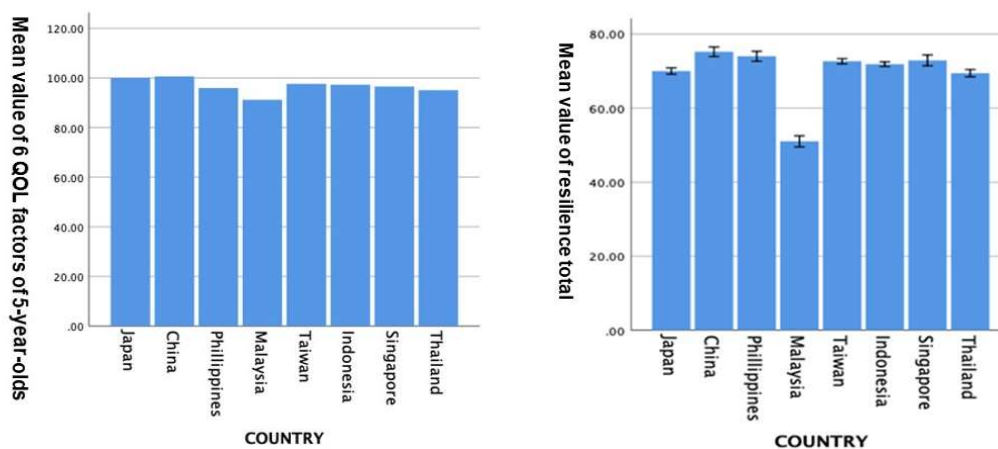
Fig.1　　QOL and Resilience of 5-year-olds

(2) Association between child caring environments and Resilience and QOL

We made much discussion among the board members of CRNA as to what environmental factors were to be chosen as the independent variables. The presence of correlational relations between the chosen factors and Resilience and QOL is a proof that our hypothesis was pertinent. The presence of such correlation also indicates that the association between these factors are a rather ubiquitous feature of childcare that are not influenced by culture and history. This means that this correlation analysis can prove the common nature of child-parent relationship.

Figures 2 and 3 summarize correlational relations between child-rearing environmental factors for five- and seven-year-old children and their resilience/QOL. The variables in circles in these Figures refer to child-rearing environmental factors as well as children's resilience and QOL. A double-headed arrow connecting two circled items shows a statistically significant correlation between these two factors. A figure above the double-headed arrow represents a correlation coefficient (r). If the R-value is between 0.2 and 0.4, it indicates a weak positive correlation, while the R-value between 0.4 and 0.7 indicates a moderate positive correlation. After analyzing the data, we confirm the following correlations, all of them with a significance level of $p < 0.001$.

① There is a weak/moderate significant correlation between child-rearing environments and children's resilience/QOL, which is common to all eight Asian countries.

② There is a moderate positive correlation with significance between children's resilience and QOL.

③ There is a positive correlation between the involvement and support of childcare facilities and schools (i.e., external environmental factors outside home) and children's resilience/QOL.
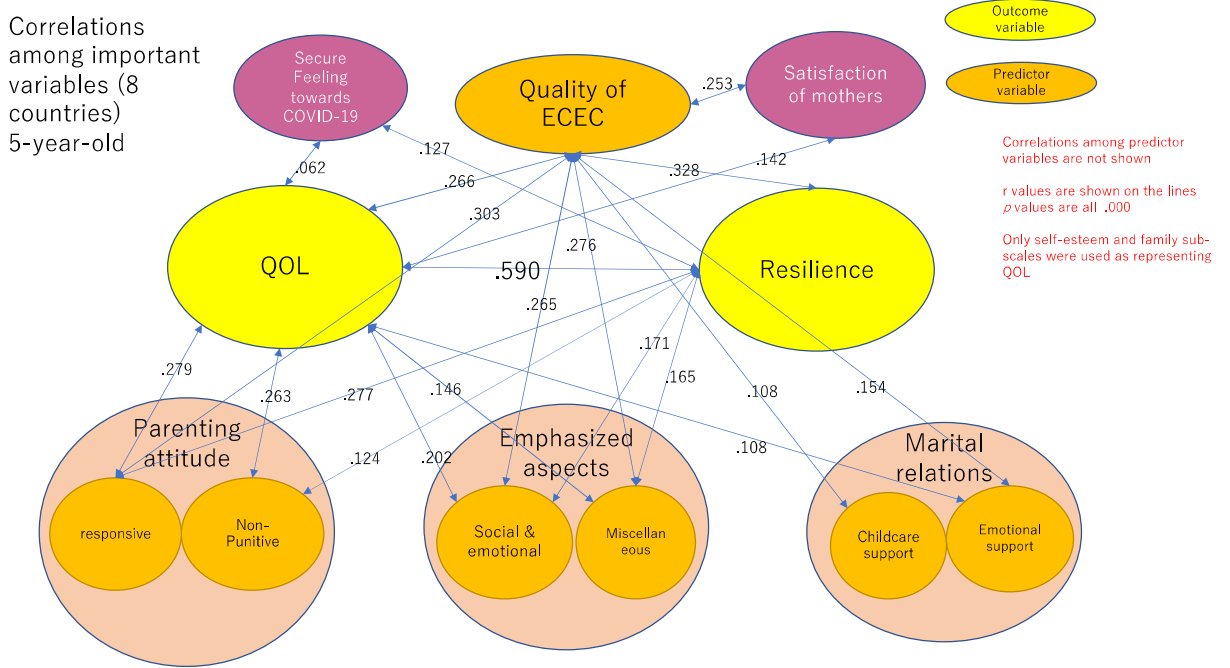
Figure 2 Correlation between childrearing environment and resilience/QOL (8 countries, 5-year-olds)
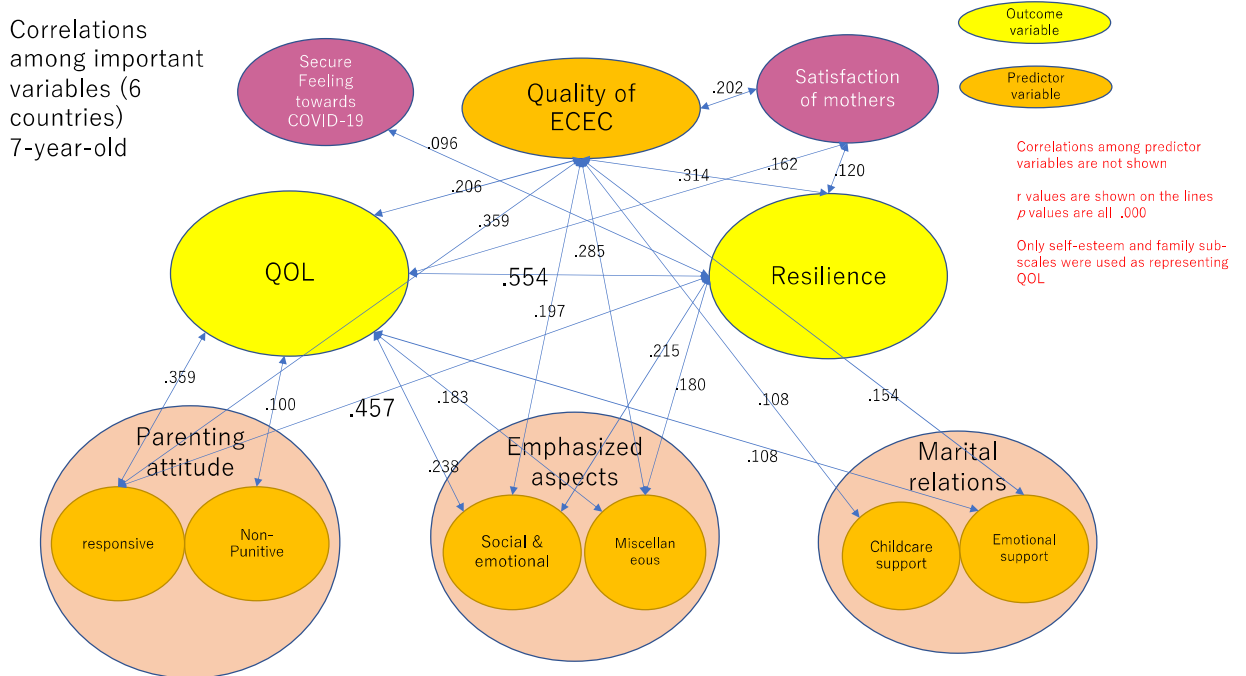

Figure 3 Correlation between childrearing environment and resilience/QOL (6 countries, 7-year-olds)

(3) Exploring environmental factors that can explain children's resilience and QOL

The existence of correlation is a prerequisite but not sufficient to confirm a causal association between two factors. Therefore, we conducted a multi-regression analysis on the factors that are found to have a significant correlation with children's resilience and QOL. Regression analysis is a statistical analysis technique that cannot prove causality but can measure the degree of predictability or explicability of one factor against another factor. With this analysis method, we seek to find to what extent these factors can explain children's resilience and QOL. Figures 4 (five-year-olds) and 5 (seven-year-olds) show associations between these factors and resilience (where resilience is as an outcome or explanatory variable).

The left-hand column shows explanatory variables, and the right-hand column shows explanatory variables. For example, in Figure 4, there are six variables in the left-hand column that can explain the resilience of five-year-old children. These variables include children's QOL, caregivers'/teachers' involvement and support, mothers' responsive parenting attitude, spousal mental support, mothers' emphasized aspects in childrearing, and mothers' sense of security amidst the COVID-19 pandemic.

"R^2" is called "determination coefficient" that indicates how well these six variables explain children's resilience. The value of "0.425" indicates a relatively high determination coefficient. This means that these six variables explain children's resilience fairly well. In addition, a figure (beta value) above the arrow indicates the contribution rate of these six variables. Looking at the beta value, it is obvious that children's QOL (happiness) significantly relates to their resilience.

Figure 5 shows the explanatory variables that explain the resilience of seven-year-old children. As you can see, these variables slightly differ from those of five-year-old children, except the variable of "caregivers'/teachers' involvement and support," which significantly relates to the resilience of children in both age groups.
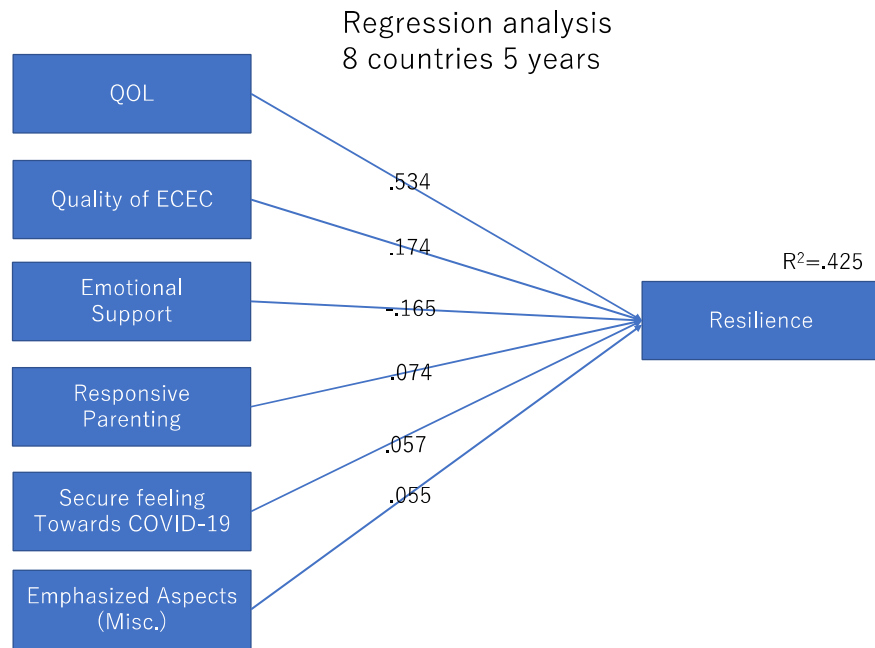
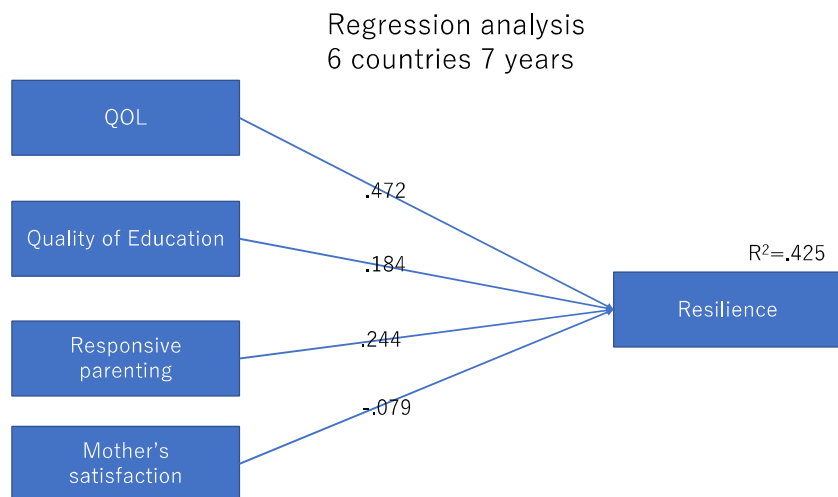Figure 4　Environmental factors explaining resilience(8 countries, 5-year-olds)

Figure 5　Environmental factors explaining resilience(6 countries, 7-year-olds)

(Yoichi Sakakihara)

(4) Relation between children's play and Resilience/QOL

In the present study, we are analyzing the relation not only between the childrearing environments and Resilience/QOL, but also the relation between children's activities and Resilience/QOL. Here we present the results among 5-year-old children. We have especially focused on the relation between the play of children and Resilience/QOL. It has been suggested that children's play evolves from the manipulation of objects and its mimicry to more cognitive activities such as the face-to-face plays, plays with rules and game-like plays. These play related activities have been indicated to have an important role for cognitive and physical development. However, this COVID-19 pandemic has greatly changed the play activities of children by closing of childcare facilities and schools. It is thought to be important to elucidate the relation between children's play activities and their development.

Table 3 is the table indicating the relation between the situation of pandemic and the change of time spent for children's activities.

Table 3: Situation of lockdown/Vaccination status and Changes in time length of play and activities
  (in 8 countries for 5-year-olds)

		Japan	Taiwan	China	Singapore	Phillippines	Malaysia	Indonesia	Thailand
Situation of lockdown	yes	12.5	19.2	0.0	25.7	91.2	58.8	48.7	84.9
Vaccination status	yes	76.4	51.5	95.1	94.1	90.2	95.4	87.4	89.8
[Changes in time length of activities]Playing freely outdoors	Increased	8.1	12.0	8.3	11.1	13.6	30.2	7.3	20.6
	Has not changed	44.7	5.9	46.2	23.7	7.9	26.4	13.0	21.3
	Decreased	47.2	82.1	45.5	65.2	78.6	43.4	79.6	58.1
[Changes in time length of activities]Playing freely indoors	Increased	53.2	43.5	22.3	55.6	81.2	55.6	41.3	32.0
	Has not changed	41.8	24.0	61.4	33.3	16.2	35.0	24.6	37.5
	Decreased	5.0	32.5	16.3	11.1	2.6	9.4	34.1	30.5
[Changes in time length of activities]Total time of using/watching digital devices at home (TV/DVD/tablet/smartphone, etc.)	Increased	56.7	70.9	34.5	54.8	87.4	56.6	51.7	61.0
	Has not changed	42.8	22.8	50.8	39.3	12.6	31.8	27.4	29.5
	Decreased	0.6	6.3	14.8	5.9	0.0	11.6	20.9	9.4

While time spent for outdoor play has decreased, time spent for indoor play and watching digital devices have increased depending upon the situation of lockdown. These changes might have influenced the contents and places, partners of play. Thus, we performed an additional analysis adding these variables. Figure 6 shows the results of a multiple regression analysis with Resilience as the outcome variable (explanatory variable) and the time spent for play and activity and playmates as independent variables (explanatory variables).
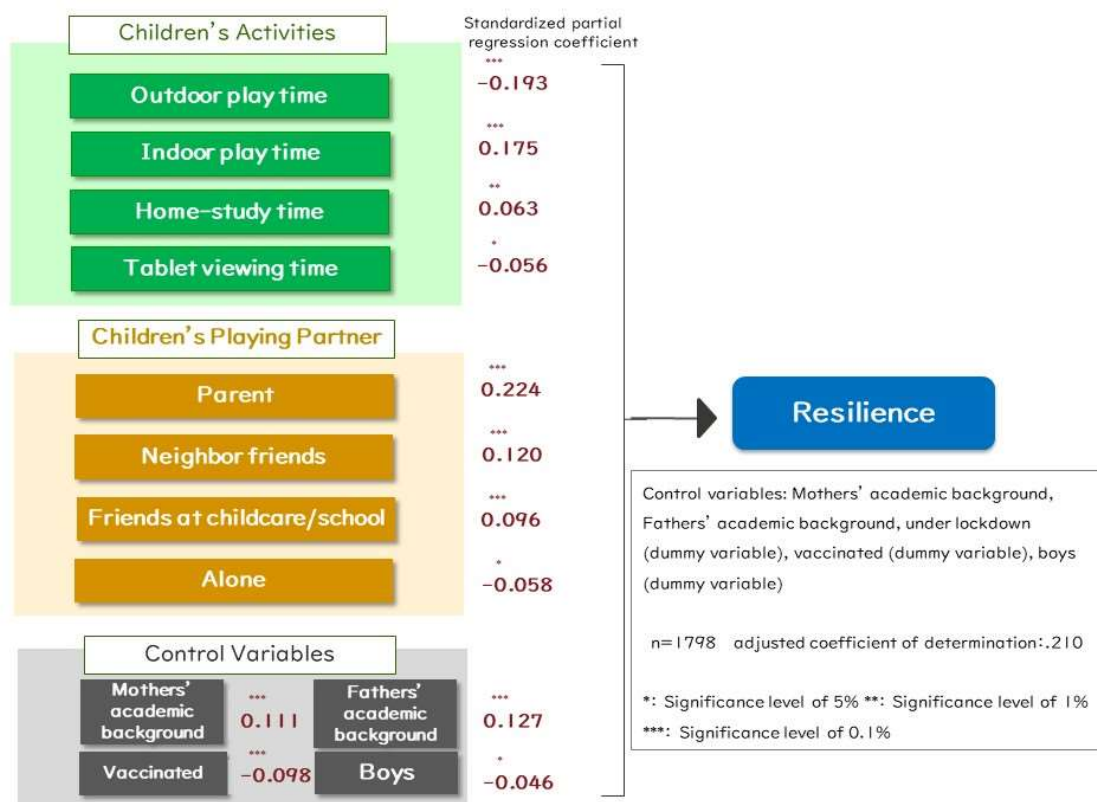
Figure 6　Children's activities and playing partner associated with resilience (8 countries, 5-year-olds)

As the predictors for the resilience of 5-year-old children, time for indoor play, study time, parents and neighboring friends as play partners, and the presence of friends at childcare facilities and schools were found to be positively significant.　On the other hand, the time for outdoor play, the viewing time of tablet device, and play alone time were negatively related with resilience. Based on the above results, we confirmed that there is a positive correlation between the variable of "indoor play with parents/friends" and the resilience of five-year-old children. Resilience is, however, closely associated with the socio-cultural background of the children, and mothers' perspective regarding the expected images of children might be different among countries.　We will further scrutinize these country specific aspects in the future study.

(5) Relation between the use of digital media and children's resilience/QOL

In addition to children's play, we also focus on another variable - the use of digital media in child-rearing. As shown in Table 3, it is revealed that the length of time spent watching/using digital devices at home has increased considerably due to the impact of the COVID-19 pandemic. Due to the government's stay-at-home order and other restrictions, it becomes

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difficult for children to enjoy activities and experiences freely as they did before the pandemic. Under such circumstances, digital media can offer various programs that stimulate children's intellectual curiosity. As a result, digital media has become more popular and essential in the daily lives of young children and their parents.

Meanwhile, some parents are concerned about the adverse effects of digital media on children's development, or feel discomfort toward children's use of digital media. Figures 7 and 8 show the results of cross-tabulation analysis by country/use purpose based on mothers' answers regarding their discomfort toward digital media usage. Figure 7 below summarizes analysis results regarding five-year-old children.
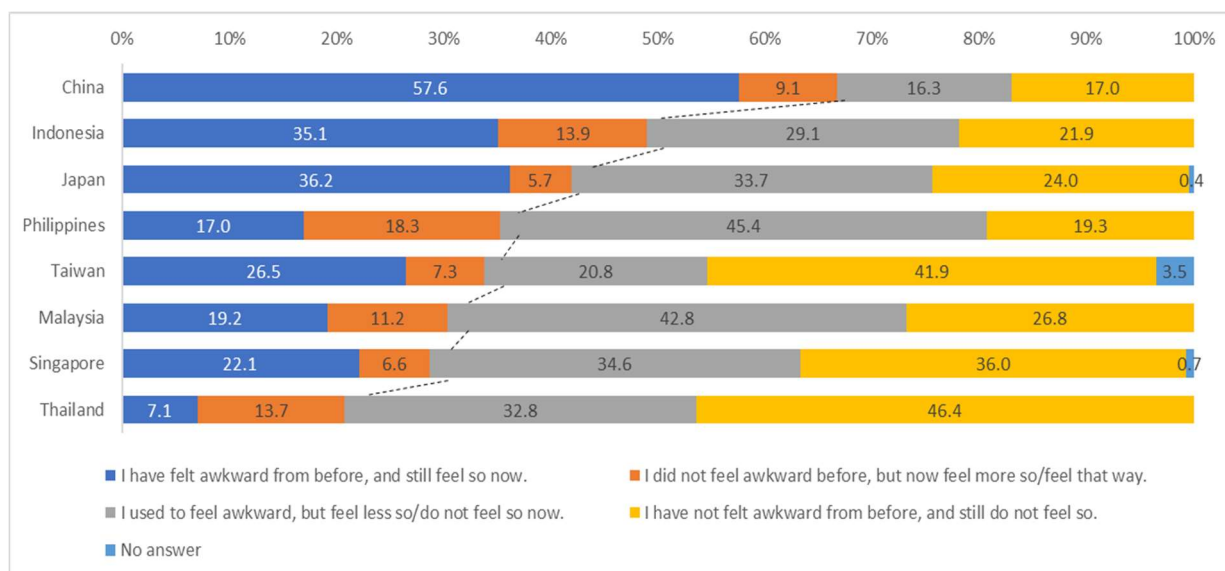

Figure 7 "Discomfort in children's ICT usage" for entertainment/play(5-year-olds)

For the question about children's use of digital devices as a tool for entertainment and play, more mothers answered, "I have felt awkward from before, and still feel so now" or "I did not feel awkward before, but now feel more so/feel that way" in China (66.7%), Indonesia (49.0%), and Japan (41.9%). In particular, more than 10% of Indonesian mothers answered they became more doubtful about the use of digital media after the outbreak of COVID-19. In contrast, the number of mothers who answered, "I used to feel awkward, but feel less so/do not feel so now" or "I have not felt awkward from before, and still do not feel so" is relatively high in Thailand (79.2%), Singapore (70.6%), and Malaysia (69.6%).

However, it should be noted that the percentage of mothers whose discomfort toward children's use of digital media has changed during the pandemic varies among eight countries. For

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example, the percentage of mothers who answered, "I have not felt awkward from before, and still do not feel so" is relatively high in Thailand (46.4%) and Taiwan (41.9%), while more mothers answered, "I used to feel awkward, but feel less so/do not feel so now" in the Philippines (45.4%) and Malaysia (42.8%).
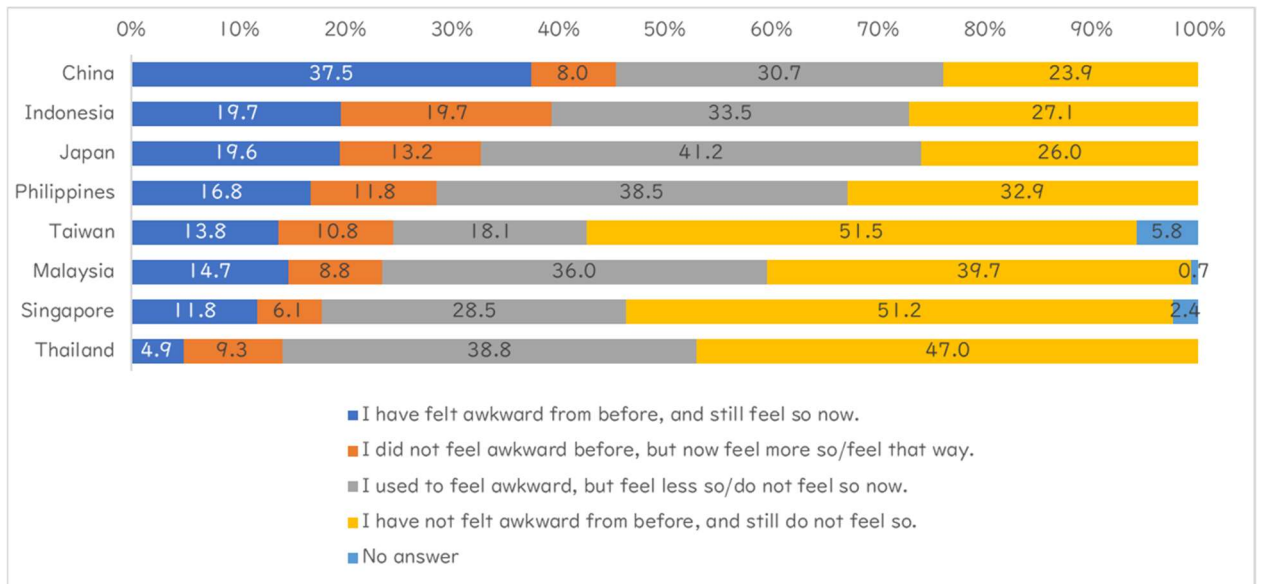

Figure 8 "Discomfort in children's ICT usage" for learning (5-year-olds)

Next, we look at the analysis results regarding children's use of digital devices as a tool for studying. Obviously, mothers tend to feel less discomfort toward children's use of digital devices for studying, compared to the use for entertainment and play. Among eight countries, the percentage of mothers who answered "I have felt awkward from before, and still feel so now" or "I did not feel awkward before, but now feel more so/feel that way" is relatively high in China (45.5%) and Philippines (39.4%). In particular, about 20% of Philippine mothers answered, "I did not feel awkward before, but now feel more so/feel that way." This indicates that mothers tend to become more doubtful about children's use of digital media during the pandemic.

In contrast, the percentage of mothers who answered, "I used to feel awkward, but feel less so/do not feel so now" or "I have not felt awkward from before, and still do not feel so" is relatively high in Thailand (85.8%), Japan (79.7%), and Singapore (75.7%). When looking into more details, the percentage of mothers who answered, "I have not felt awkward from before, and still do not feel so" is high in Taiwan (51.5%) and Japan (51.2%), while more mothers answered, "I used to feel awkward, but feel less so/do not feel so now" in Malaysia (41.2%) and Thailand (38.8%).

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To sum up, overall mothers' discomfort toward children's use of digital media seems to be fading either for the purpose of studying and entertainment/play. Under the ongoing COVID-19 pandemic situation, people's perceptions toward the use of digital media and surrounding environments are rapidly and significantly changing. Therefore, it may be important to consider how to utilize digital media in child-rearing and ensure family rules and instructions for using digital media at home.

In the future, we will further examine children's behavioral patterns in watching/using digital devices and parents' involvement in their usage. At the same time, we focus on parents' underlying perceptions toward children's use of digital media. Therefore, we plan to conduct additional analysis studies, combining the variables of behavioral patterns with the variables of perception tendencies.

<div align="right">(Akihiro Sato)</div>

6. Summary

What we have presented in this preliminary report includes, the general demographic data of mothers in 8 participating countries (mothers' educational levels, household income, situation of childcare facilities/school attendance due to COVID-19), relation between resilience/QOL as the outcome variables and practice and perception of child rearing, situation of rapidly changing digital media usage by children, and the roles of children's play.

The country reports from 8 participating countries will follow this brief introductory report.

It was found to be evident that quite a lot of factors (variables) are associated with the happiness and resilience of children. This means that theoretically we can promote the status of children's happiness and resilience by altering these environmental variables.

We will further scrutinize the data obtained through this survey and hopefully materialize a useful proposal for the promotion of children's happiness and resilience directed to parents, teachers, and government officials.

Finally, we would like to express our gratitude to the mothers who shared their precious time under the stress from the COVID-19 pandemic in submitting this cumbersome questionnaire.

<div align="right">(Yoichi Sakakihara)</div>

Authors:

Yoichi Sakakihara (CRN Director; Professor Emeritus, Ochanomizu University)

Akihiro Sato (Senior researcher, CRN/BERD)

Junko Ogawa (Researcher, CRN)

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