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Original Research Article

Factors associated with loss learning recovery after the COVID-19 pandemic of students in Nakhon Si Thammarat, Thailand

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ABSTRACT

Background: The southern province of Thailand, Nakhon Si Thammarat, has the greatest amount of schools. The COVID-19 outbreak has had a major impact, notably on students who have missed out on their education as a result of the prolonged closure of the schools to stop the spread. It is very important to investigate the effect of socio-demographic factors on the loss learning recovery of student in primary schools. This study aimed to explore the influencing factors of student in primary schools based on their socio-demographic status.
Methods: The analysis utilized secondary data from observations of student behavior collected by school teachers in May 2021 and April 2022. Chi-square test, ANOVA test, and multiple-linear regression were used to examine the factors.
Results: The results showed that the loss learning recovery significant difference with marital status of parents and family income. The group of parents who had marital status of married had the higher loss learning recovery than divorced as well as the group of low income family had the lowest loss learning recovery.
Conclusions: It is necessary to understand the characteristics of the student in primary school. Especially factors that affect the loss learning recovery for build education systems back better and found to support them in every manner so that their learning can resume normally and advance past what was lost.

Keywords: Loss learning recovery, The COVID-19 pandemic, Students in primary schools

INTRODUCTION

The spread of the COVID-19 virus. People from all across the world are affected by this challenging situation.[1] Semi-lockdowns and social seclusion are the urgent steps adopted by governments in several nations to stop the virus's spread.[2] The capacity of every aspect to deal with it is challenged at the same time. The COVID-19 viral pandemic has had a significant impact on education, in particular.[3] To reduce the likelihood of the virus spreading, schools must be shuttered. Because a virus outbreak can start while pupils are huddled together in a classroom. In 2021, UNESCO estimates that 1.6 billion pupils, or more than 90% of all students, will have been impacted by the pandemic and forced to quit attending school. A lot of schools have switched from classroom instruction to online learning.[4] There are various ways to educate online, such through massive open online courseware (MOOC) or tools that support teachers in setting up virtual classrooms or allowing students to finish their homework at home while schools are closed by using television broadcasts.[5] The world bank expressed worry that the situation in which teaching and learning in schools would cease would result in the

loss of learning opportunities for the majority of students, particularly students from poor families because there is not enough income to support their children's education.[6] Additionally, it can result in this group of students leaving the educational system. Long-term, this will have a negative impact on students' life.

The loss of learning is related to the fact that every nation had to close schools to stop the disease from spreading. The average public school student in the United States in grades 3-8 lost what's equal to a half year's worth of math knowledge and a quarter of a year's worth of reading knowledge.[7] According to the data, students in Memphis, Tennessee, where almost 80% of students live in poverty, lost the academic equivalent of 70% of a school year in reading and more than a year in arithmetic. Black pupils in the district fell behind in arithmetic by a year and a third and in reading by two thirds of a year.[8] In sub-Saharan Africa, at the primary and lower secondary levels, about six million students did not meet the competency standard.[9] According to research from Stanford university and the center for education policy research at Harvard university, where children resided during the epidemic mattered more to their academic success than their parental history, level of income, or internet speed. In addition, they discovered that the effects continued for years after looking at instances where test scores increased or decreased in the decade prior to the pandemic. They also studied information from the decade before the epidemic to determine how students recovered from serious learning losses brought on by disruptions in their schooling. The data demonstrates that schools don't typically recover: In the first year, affected children made up 20-30% of the lost ground, but in the following three to four years made no more progress toward recovery.[7]

Millions of students in Thailand have been impacted by extended school closures, particularly the most vulnerable who do not have access to online education. Especially, Nakhon Si Thammarat province, which is the province with the highest number of schools in the southern region of Thailand. It was found that many vulnerable students were unable to access online education. In 2020, the national statistical office conducted a survey that found that 26% of Thai families lacked internet access for online learning, 51% of families lacked access to devices for online learning, and 40% of parents and caregivers said they lacked the time to supervise their children's online learning.[10] The office of education council reported the COVID-19 pandemic has negatively affected the overall quality of teaching and that the number of students absent from both online and offline classrooms has increased.[11] This is despite efforts to increase access to faster internet, integrate more technology, and decrease class sizes in schools. The lost opportunity to learn from the crisis will come at a high financial cost. If immediate corrective action is not done, a recent calculation projects that the current school-age population will lose $17 trillion in lifetime earnings.[7] It is urgently necessary to explore the factors affecting loss learning recovery of student in primary schools, Nakhon Si Thammarat, Thailand and seize this opportunity to build education systems back better and develop a clear strategy to address learning loss recovery. Additionally, solutions must be found to support them in every manner so that their learning can resume normally and advance past what was lost.

The aim of the present study is to investigate factors affecting loss learning recovery of student in primary schools based on their socio-demographic status. The results of this study can be used as guidelines to develop a clear strategy to address learning loss recovery of students in primary schools, Nakhon Si Thammarat, Thailand. As well as being used for the benefit of policy formulation to properly recovery loss learning of students in primary schools with further directions.

METHODS

Study design

This study used secondary data from school that archived from May 2021 to April 2022. A cross-sectional research approach and a stratified random sampling method were used to explore the influencing factors of the loss learning recovery after the COVID-19 pandemic of students in primary schools, Nakhon Si Thammarat, Thailand.

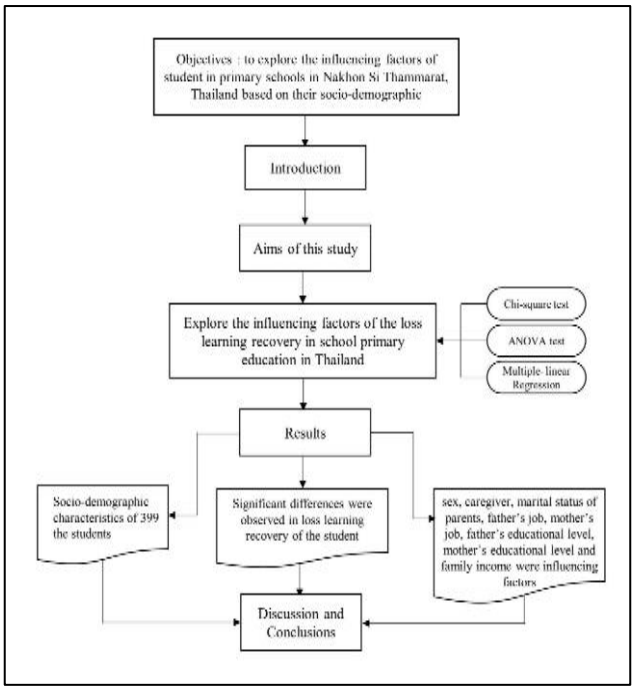

Figure 1: Framework of this research.

Structure model

To clarify and highlight the main points of our work, we offer a model of the structure of this study publication (Figure 1). Chi-square test, ANOVA test and multiple-

linear regression were used to examine the factors that affected loss learning recovery after the COVID-19 pandemic of students in primary schools through a literature review and field investigation. We then examined the findings, discussed them, and arrived at conclusions.

Data collection

In 2022, Nakhon Si Thammarat has 84,461 students in primary school.[12] The ministry of education in Thailand has divided education into 4 parts according to area, which is called the primary educational service area office (PESA) 1-4. Taro Yamane's method was used to calculated sample size and allowing 5% margin of error.[13] Therefore, the sample size was 399 students. After that, the sample size of each area was calculated proportional allocation (Table 1).

Table 1: Population and sample size of students in primary schools for data collection.

PESA	Population	Sample size
1	14746	70
2	24012	113
3	27211	129
4	18492	87
Total	84461	399

Inclusion and exclusion criteria of the study participants

Inclusion criteria

The teacher has inclusion criteria for selecting students who were studying in primary school during the COVID-19 pandemic in Nakhon Si Thammarat, suffered the effects of learning loss during the prolonged school closure, clear communication skills and parents or caregivers provided consent to participate in the study.

Exclusion criteria

Students who are not studying at the primary school in Nakhon Si Thammarat, and have unclear communication skills will be excluded.

Variables

Outcome variable

The loss learning recovery after the COVID-19 pandemic was the study's outcome variable. Each item on the questionnaire was scored on a Likert scale from 1 to 5, with higher scores indicating higher lost learning recovery. The questionnaire was created by us manually using both domestic and foreign literature. All variables were examined after we completed designing the questionnaire, which was found to have a Cronbach's alpha coefficient value of 0.82.[13]

Explanatory variables

Socio-demographic characteristics included sex, caregiver, marital status of parents, father's job, mother's job, father's educational level, mother's educational level and family income. Descriptive statistics including mean of total loss learning recovery scores. The means for the levels of each determinant were compared in the preliminary analysis using the two sample t test or one-way analysis of variance, as appropriate. The factors affecting student's loss of learning recovery were examined using multiple regression. Data analysis was performed using R. This study involves the observation of teaching and learning behaviors, with a focus on maintaining anonymity. The researchers refrain from directly contacting individuals who possess the information, and no personal identification is pursued. As the investigation does not delve into individual profiles, obtaining research ethics permission is not required.

RESULTS

The results of the socio-demographic characteristics of the elderly in sample areas (Table 2). This table shows that 399 samples were valid. A total of 70, 113, 129 and 87 of these samples came from PESA 1-4, respectively. It was found that there were significant differences in all explanatory variables. In each PESA, 62.66% are female students. Most of them in PESA 1-2 had parents who served as caregivers (54.14%), but not in PESA 3-4. 68.42% of marital status of parents who are married. The majority of the students have fathers (41.35%) and mothers (39.10%) who are farmers. More than 60% of their education below high school and over half of them are low income.

To determine socio-demographic characteristics, a multiple regression model was utilized. The model produced an r-squared of 74.15%, which is the percentage of variance in loss learning recovery that can be explained by socio-demographic factors. The quantile-quantile (Q-Q) plot of studentized residuals indicate that the model fit well since the residuals tended to follow a red line (Figure 2).

The factors that affect the loss learning recovery of the student were analyzed by applying the multiple-linear regression method (Table 3). Parents who had marital status of married exhibited a significant difference with divorced, which was the reference sample area ($p \leq 0.001$). Significant differences were observed between the group of low-income family ($p \leq 0.001$). The group of parents who had marital status of married had the higher loss learning recovery than divorced as well as the group of low-income family had the lowest loss learning recovery.

Table 2: Description of socio-demographic characteristics of the students in primary school, Nakhon Si Thammarat, Thailand, (n=399).

Variables	Total, n=399		PESA 1, n=70		PESA 2, n=113		PESA 3, n=129		PESA 4, n=87		Chi-square	P value
	N	%	N	%	N	%	N	%	N	%		
Sex												
Male	149	37.34	28	40.00	48	42.48	54	41.86	19	21.84	24.10	0.002
Female	250	62.66	42	60.00	65	57.52	75	58.14	68	78.16		
Caregiver												
Parents	216	54.14	44	62.86	76	67.26	57	44.19	39	44.83	15.84	<0.001
Not parents	183	45.86	26	37.14	37	32.74	72	55.81	48	55.17		
Marital status of parents												
Married	273	68.42	52	74.29	81	71.68	66	51.16	74	85.06	19.40	<0.001
Divorced	126	31.58	18	25.71	32	28.32	63	48.84	13	14.94		
Father's job												
Government officer	72	18.05	8	11.43	21	18.58	37	28.68	6	6.90	203.19	0.017
Merchant	140	35.09	24	34.29	54	47.79	41	31.78	21	24.14		
Farmer	165	41.35	31	44.29	32	28.32	50	38.76	52	59.77		
Other	22	5.51	7	10.00	6	5.31	1	0.78	8	9.20		
Mother's job												
Government officer	61	15.29	11	15.71	16	14.16	22	17.05	12	13.79	89.01	0.022
Merchant	147	36.84	27	38.57	51	45.13	58	44.96	11	12.64		
Farmer	156	39.10	24	34.29	31	27.43	42	32.56	59	67.82		
Other	35	8.77	8	11.43	15	13.27	7	5.43	5	5.75		
Father's educational level												
High school/below	270	67.67	54	77.14	75	66.37	77	59.69	64	73.56	96.39	0.035
College	129	32.33	16	22.86	38	33.63	52	40.31	23	26.44		
Mother's educational level												
High school or below	274	68.67	42	60.00	71	62.83	93	72.09	68	78.16	35.02	<0.002
College	125	31.33	28	40.00	42	37.17	36	27.91	19	21.84		
Family income (Bath)												
Low income[a]	229	57.39	23	32.86	65	57.52	77	59.69	64	73.56	186.81	<0.001
Moderate income[b]	95	23.81	31	44.29	28	24.78	24	18.60	12	13.79		
High income[c]	75	18.80	16	22.86	20	17.70	28	21.71	11	12.64		

[a] <5,000, [b] 5,001-10,000, [c] >10,000

Table 3: Socio-demographic characteristics of students in primary school, Nakhon Si Thammarat, Thailand, (n=399).

Variables	N	Mean ± SD	T/F	P value
PESA				
1	70	4.12±0.29	19.29	0.512
2	113	4.52±2.46		
3	129	4.34±1.78		
4	87	4.86±1.20		
Sex				
Male	216	4.52±0.18	15.56	0.271
Female	183	4.78±0.21		
Caregiver				
Parents	273	4.12±0.15	15.00	0.321
Not parents	126	4.57±0.74		
Marital status of parents				
Married	72	4.63±1.23	11.03	0.002*
Divorced (ref.)	140	4.01±0.57		

Continued.

Variables	N	Mean ± SD	T/F	P value
Father's job				
Government officer	165	3.72±0.41	24.15	0.671
Merchant	22	3.81±0.20		
Farmer	61	4.31±1.54		
Other	147	4.20±1.18		
Mother's job	156			
Government officer	35	3.58±0.74	18.64	0.138
Merchant		3.74±0.89		
Farmer	270	4.28±1.21		
Other	129	4.01±0.27		
Father's educational level				
Less than a bachelor's degree	274	4.51±0.11	13.00	0.454
Bachelor's degree or higher	125	4.12±0.75		
Mother's educational level				
Less than a bachelor's degree	229	4.64±0.39	14.12	0.263
Bachelor's degree or higher	95	4.48±1.05		
Family income				
Low income	75	3.87±0.27	31.52	<0.001*
Moderate income	216	4.42±0.85		
High income	183	4.75±1.31		

[a] <5,000, [b] 5,001-10,000, [c] >10,000

Table 3: Multiple-linear regression analysis of factors affecting loss learning recovery of student in the primary school.

Variables	Coefficients	Std. error	P value
Constant	5.515	0.285	<0.001
Primary educational service office			
1	4.254	0.244	0.167
2	0.406	0.293	0.157
3	0.436	0.308	0.495
4 (ref.)			
Sex			
Male	0.036	0.150	0.808
Female (ref.)			
Caregiver			
Parents	-0.324	0.120	0.087
Not parents (ref.)			
Marital status of parents			
Married	-1.054	0.214	<0.001
Divorced (ref.)			
Father's job			
Government officer	-0.633	0.175	0.719
Merchant	-1.305	0.171	0.882
Farmer	-4.663	0.176	0.127
Other (ref.)			
Mother's job			
Government officer	-4.116	0.174	0.966
Merchant	-1.872	0.172	0.587
Farmer	-3.448	0.173	0.257
Other (ref.)			
Father's educational level			
Less than a Bachelor's degree	3.467	0.180	0.803
Bachelor's degree or higher (ref.)			
Mother's educational level			
Less than a bachelor's degree	3.486	0.116	0.994
Bachelor's degree or higher (ref.)			

Continued.

Variables	Coefficients	Std. error	P value
Family income			
Low income	-4.713	0.174	<0.001
Moderate income	-5.669	0.174	0.201
High income (ref.)			

[a] <5,000, [b] 5,001-10,000, [c] >10,000

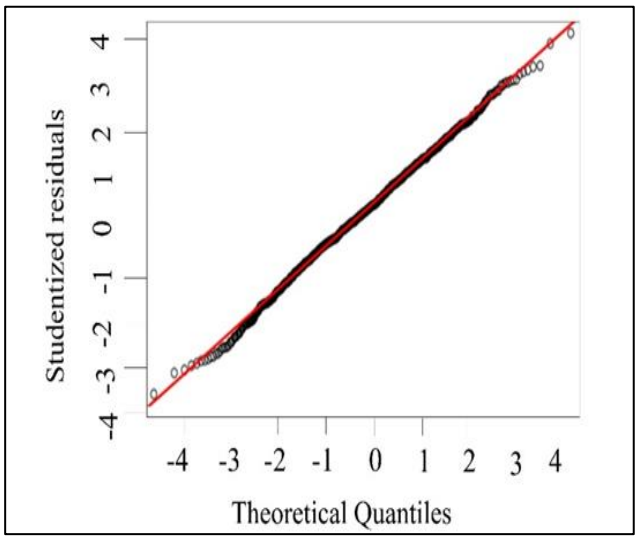

Figure 2: Quantile-quantile (Q-Q) plot of standardized residuals from multiple regression model.

DISCUSSION

The purpose of this study was to explore the influencing of socio-demographic factors on the loss learning recovery after the COVID-19 pandemic of students in primary schools, Nakhon Si Thammarat, Thailand. Our results show that the most important factors were marital status of parents and family income.

Our results show that students whose parents married had more loss learning recovery than students whose parents divorced. One of the reasons may be that primary school students, ages 6 to 12, going through a time of physical development. Be eager to learn new things, both within and outside of the classroom. Parents still have very essential responsibilities during this age, in addition to teachers. Particularly throughout the COVID-19 pandemic. To stop the virus's long-term spread, schools are permanently closed. Due to this, students are unable to learn in the classroom. however, spending more time with parents at home. Parents' focus on education during the COVID-19 pandemic including giving love and relationship is therefore essential. Because if it is lacking, it will definitely affect the recovery of learning loss. The results of our study are consistent with many previous studies. It found that parental divorce is positively correlated with decreased academic attainment.[14-17] When their parents' marriage is in trouble, student's test scores and desire for education suffer. Also, more likely to be held back a grade and have worse grade point averages (GPAs).[18] The highest combined English and math GPAs are achieved by children of intact parents.[19] Children from divorced homes fared worse in reading, spelling, math and repeated grades more frequently than children from intact families. According to the Kent State university impact of divorce project, which used a national sample study of 699 primary students. One study indicated that children whose parents divorce receive around seven-tenths of a year less education than children from intact families (after controlling for parental education, parental occupation, family size, etc.).[20]

Low-income family had the lowest loss learning recovery. The results of our study are consistent with reports from various agencies include many research studies.[21-23] The world bank reported that in 2022 poorer students have noticed a decline in their academic performance and in many nations, the fundamental abilities on which every part of education is based have been lost. Some students are unable to recognize letters and many kids have forgotten how to read and write.[24] Researchers at the university of California, Berkeley, and university of Maryland found that in 2022 across the country, elementary students from low-income families are attending schools that are increasingly distinct from those of their middle-class counterparts, which has detrimental effects on their ability to study.[25]

Additionally, UNICEF in Thailand assessment from October 2020 reveals that educators and the educational system were not adequately trained or supervised to conduct online classes.[26] In Kuala Lumpur, 1 in 5 low-income parents reported that their child stopped caring about school after the Movement Control Order (MCO). On top of that, 50 to 60 percent of B40 households had trouble paying their tuition.[27] As many of us are aware, taking online classes requires a reliable internet connection. In low-income households, however, access to these devices continues to be a significant barrier, with 37% of all students unable to access regular and supplemental online classes and materials due to a lack of personal devices. The world bank further reports that poorer and younger students have had more severe learning deficits. This pattern partially reflects how challenging it is for these student groups to make up missed instructor time.[24] Poorer families tend to have parents with fewer finances, fewer skills, and less free time to invest in their children's education. Additionally, young children require extra assistance in order to learn. These trends will make inequity worse. Other disadvantaged populations, such as rural students and students from minority groups, can sometimes experience greater learning deficits.

This study has some limitations. The instructional methods of the teachers and the school's emergency care procedures are not included. Therefore, the next research should collect these data and analyze them as well.

CONCLUSION

Although our study discovered that low-income households and parental divorce are characteristics associated with loss learning recovery of student in primary school after the COVID-19 pandemic, there are actually more. However, we found that parents have time to focus and talk about schooling with your child regularly. It is also a signal that education is important especially when their children are still in primary school. Parents can help improve their children's academic performance and spending time with them by regularly checking your child's homework and participate in school activities. In addition, low-income family may not fully be a result of COVID-19's pandemic but it is obvious that the pandemic had a significant effect on the economy. Causing more workers to become unemployed, households have lower incomes, which ultimately affects the education of their children. Naturally, households will address these issues on their own initially but the government need to have plans in place to address them. Supporting the budget is one way to address the issues of poverty and income disparity. Including developing urgent strategies to reverse the loss learning recovery of students in primary school. Ultimately, there is much work to be done, and the challenges for students and parents are considerable. Relying on what we have studied could show the way forward.

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