

## Prediction and Analysis of Mathematics Anxiety Disorders in Adolescents During the Pandemic

Melda Rumia Rosmery Simorangkir<sup>1</sup>, Risma Uly Manalu<sup>2</sup>, N Masta<sup>3</sup>

<sup>1,2,3</sup> Faculty of Teacher Training and Education, Indonesian Christian University.

[melda.simorangkir@uki.ac.id](mailto:melda.simorangkir@uki.ac.id)

**Abstract** -- The COVID-19 pandemic which has been going on for almost a year has caused erratic changes in all vital aspects of life. These changes create anxiety which, if left untreated, can lead to depression, especially for adolescents who are transitioning from childhood to early adulthood. So it needs special management for anxiety disorders in the midst of the COVID-19 pandemic. The purpose of this study is to provide an overview of students' anxiety levels in the midst of COVID-19. The method in this study is a quantitative research method with a descriptive approach used to describe anxiety disorders that occur in grade 7 junior high school (SMP) students at SMP Mutiara Baru Bekasi. The data collection process was carried out by using interviews and questionnaires in the form of during the results that students experienced very high anxiety during the pandemic, the action taken was to build student self-efficacy provided by the counseling guidance teacher to build their confidence.

**Keywords:** Anxiety Disorders; Youth; Pandemic

### INTRODUCTION

Corona virus or severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a virus that attacks the respiratory system. This disease due to viral infection is called COVID-19. The Corona virus can cause minor disorders of the respiratory system, severe lung infections, and death. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), better known as the Corona virus, is a new type of corona virus that is transmitted to humans. This virus itself can attack anyone, no matter men or women, infants or the elderly, rich or poor is not the reason that the individual is immune to this deadly virus. On 10-12 January 2020 WHO as the world health organization. Setiati and Aswar (2020: 84) in their research revealed that the 2019 corona virus infection pandemic (COVID-19) is not only faced in Indonesia or ASIA, this is a problem that is being faced in more than 200 countries in the world. Indonesia has also been badly affected by COVID-19 where as of the end of March 2020 the death rate had reached 8.9%. On March 16, 2020 the government took a big policy in order to break the Corona virus, namely by taking the PSBB (Large Scale Social Restriction) step so that carrying out learning, working and worship activities at home, it is recommended for Indonesia to tighten its appeal to stay at home, reduce the spread of disease by quarantine areas on a large scale, improve health services, and increase the availability of personal protective equipment (PPE). It is important for countries to reduce

the peak epidemic so as not to overwhelm the country by quarantining individuals with a history of contact with COVID-19 cases. Regional quarantine / lockdown can also significantly increase the doubling time of the epidemic. The need for health services will increase along with the increasing number of cases. This underscores the importance of protecting healthcare workers from the risk of infection. Scientific research in Indonesia is also crucial for providing advice related to the COVID-19 case. Many impacts occurred during the PSBB implementation, even in terms of PSBB education which is so widespread in the country that all teaching and learning activities are eliminated in schools and can only be done at home in total, from early childhood education to early education. Both formal, non-formal and informal education all carry out learning activities at home.

For junior high school students (SMP), of course this is not easy to deal with, not a few of them experience anxiety. The various news circulating about Covid-19 makes them even more anxious, not to mention the new adjustments to the learning system they have received. Changing the classic face-to-face learning style into during via a laptop or cellphone. If this anxiety continues, it will certainly have an impact on students' psychology, even though mathematics itself is not something to be feared, but must be accepted openly as part of the process in education. Holmes (1991) in (Yudhanegara & Lestari, 2017) explains that if the factors that cause anxiety in students are not immediately handled properly, it will certainly affect students' psychology both when learning mathematics alone or dealing with other subjects. Based on Ridwan's explanation, it is clear that problem solving from subjects must start from simple so that in other subjects students get used to dealing with it well. Hurlock in (Maharani et al., 2018) maybe this is because mathematics itself is abstract, mathematics requires the ability to understand concepts so that students are not bored and bored besides that anxiety about mathematics subjects also still occurs in students.

In addition to cooperative learning in class in mathematics, it turns out that self-efficacy is also very influential in stabilizing student anxiety about mathematics. As a self-efficacy figure Bandura (1997) in ("Self-Efficacy and Has. Learning Mat. Meta-analysis," 2016) explains that self-efficacy is knowledge about oneself, and interestingly this self-assessment greatly influences individuals to determine an action. in achieving the expected goals. In previous research conducted by the Effectiveness of Stad Cooperative Learning in Improving Attachment Behavior ("Self-Efficacy and Has. Learning Mat. Meta-analysis," 2016) entitled Self-efficacy and mathematics learning outcomes: Meta-analysis. In his research ("Self Efficacy and Learning Results Mat. Meta-analysis," 2016) explained that students who have high efficacy are generally more persistent and effective in facing difficulties and failures, including those related to problem solving in mathematics.

Other research that has been conducted (Sunaryo, 2017) regarding the measurement of student self-efficacy in mathematics learning shows that self-efficacy is a belief that students have, it was found in his research that there was an average of the overall score of the Self-efficacy scale at MTs N 2 Ciamis is 3,07, so it is included in the positive category and will certainly affect the way they answer questions in mathematics. The choice of SMP Mutiara Baru Bekasi as the location of this research was because when PKM was carried out by researchers on October 16, 2019, it was found that students at the SMP often faced

difficulties in mathematics. Student self-confidence is so low in mathematics, fear of answering wrongly and fear of getting bad grades are also reasons that students in junior high school have difficulty answering with confidence. So this is the reason why SMP Mutiara Baru Bekasi is a place for research. In addition, the pandemic conception at the time and the decision to quarantine and carry out learning during March 16, 2020 made students even more confused about the patterns and methods of learning mathematics at home.

### **A. Anxiety**

Students' view of mathematics is not always good, many think that mathematics subjects are so complicated, scary and difficult to conquer. (Wicaksono & Saufi, 2013) revealed that anxiety can be an important part of understanding mathematics, it cannot be denied that this anxiety can increase because it is very subjective and exists in the individual itself so that it greatly affects understanding of mathematics. The constant anxiety in students will certainly greatly manage their psychic management, Jarnawi (2010) in ("ABILITY TO THINK CRITICAL MATHEMATIC AND MATHEMATIC ANXIETY IN LEARNING WITH PROBLEM SOLVING APPROACH (Experimental Study in Class X Man Rukoh Kota Banda Aceh)," 2013 ) Student anxiety about mathematics is not necessarily because mathematics is related to calculations, but the interaction between educators and students also has a significant role in student anxiety. This is because the teacher is a facilitator for students. psychoanalysis, anxiety is a feeling of fear caused by repressing feelings, memories, desires and experiences that appear in one's consciousness. (Anita, 2014) that the condition of mathematics anxiety among students should not be considered as a trivial matter, because this will make the child have a phobia towards mathematics so that the grade is low in the class. Excessive anxiety can certainly manage students' psychic management as expressed (Suardana & Simarmata, 2013), excessive anxiety not only damages the psyche but also mentally of students, thus hindering students whose questions were able to be answered properly but anxiety makes questions that should be answered become cannot be answered by students.

(Millan, 2003) "Fear is an adaptive component of the acute" stress "response to potentially-dangerous (external and internal) stimuli which threaten to perturb homeostasis. However, when disproportional in intensity, chronic and / or irreversible, or not associated with any genuine risk, it may be symptomatic of a debilitating anxious state: for example, social phobia, panic attacks or generalized anxiety disorder. " In his research Mark explains that fear is an adaptive component of the stress response, but when the intensity is not chronic it may be a symptom of a debilitating anxious state: for example, social phobia, panic attacks or generalized anxiety disorder. It turns out that anxiety in students is also influenced by their self-concept which tends to be negative, (Nuari, 2017) in his latest research that negative self-concept will greatly affect students in facing various challenges in mathematics, students who have negative self-concepts will have considerable anxiety in studying mathematics. Based on this statement, building students' self-confidence is very important for them to be ready to face various challenges in mathematics, subject teachers need to work with guidance and counseling teachers to build positive self-confidence in students.

## **B. Self-efficacy in Mathematics**

In its implementation, students need self-efficacy in completing mathematics, as stated (Hackett, 1985) "investigated the effects of math self-efficacy on math anxiety using path analysis with relationships hypothesized from social cognitive theory and found that self-efficacy had a strong direct effect. Self-efficacy also had a stronger direct effect on choice of math-related careers than did anxiety and an even stronger total effect. Math self-efficacy was also a stronger predictor of math anxiety than either prior high school math experience or gender. " Hackett in his research revealed that self-efficacy has such a big role in dealing with mathematics anxiety, this effect is so strong and plays a total role in students, and until now mathematics anxiety needs to be done to the students' self efficacy. Building self-efficacy in students will certainly help them to be able to solve other problems that may be present in the future.

In his research (Usher & Pajares, 2009) states that "Students with a positive attitude may believe that mathematics is important to their everyday world or solving mathematics problems is enjoyable. Even though they may believe that mathematics is important they may not believe that they can solve a math problem. That means a person with a positive attitude may have a low self-efficacy. On the contrary, if they believe that mathematics is important they may develop persistence toward mathematics and eventually develop a higher self-efficacy. " That the positive attitude of students towards mathematics will affect themselves in solving math problems, this positive attitude is the self-efficacy that exists in students towards mathematics.

### **RESEARCH METHODOLOGY**

The research design used is a qualitative method. (P.D, 2014) explained that qualitative itself is research based on the philosophy of post-positivism, research is intended to examine natural objects, in this study experiment is the opposite and the researcher himself is the key instrument. Data collection techniques in qualitative, data analysis itself is inductive / qualitative. The results of qualitative research themselves place more emphasis on meaning than generalization. The subjects in this study were students of class VII SMP Mutiara Baru Bekasi. The object of this research is counseling guidance teachers in building student self-efficacy in which it discusses students to be able to have motivation and build good self-confidence in all subjects in class, especially mathematics during the Covid-19 pandemic.

**Tabel 1. Students population**

<b>No</b>	<b>Class</b>	<b>Amount</b>
1.	VII	19 students
2.	VIII	17 students
3.	IX	9 students
Total		45 students

**Results and Discussion**

**a. Student's initial conditions**

It seems that mathematics is not always in demand by SMP Mutiara Baru students, especially grade VII students. At the initial meeting, the researcher asked the mathematics subject teacher how the readiness of the students at the school for mathematics was expressed

"Students at this junior high school already know very well that there are 12 students in mathematics every week. One subject hour is 40 minutes, each student meeting involves teaching and learning activities. The teacher did the pretest and posttest to warm up the students as well as measure the students' abilities. "

However, based on the initial interview conducted on the students initials DW in class VII revealed:

"I actually like math, it's fun too. But I find it difficult to count, afraid to make mistakes so embarrassed and not confident "

Different statements expressed by R, students explained:

"If I don't like math, because the teacher came in early, my heart beat was racing, maybe because I had homework and there would be assignments to be given. I get dizzy when maths lessons take place "

Meanwhile G revealed that:

"I really like mathematics, the grades he has are also very satisfying, according to him mathematics is like playing games. There is satisfaction in itself if you can answer the questions. "

Ibu Eka as a math teacher in grades VII and IX explained that;

"Not all students like mathematics, but it cannot be denied that today's students are indeed growing rapidly. Mathematical difficulties can be covered by other achievements. However, because they have to deal with math 12 in 1 week, of course they have to learn to face mathematics well. Making mathematics a good friend so there is no internal conflict between students and their mathematics subject. "vocational school. The research was conducted at the seventh grade junior high school level for the 2019/2020 school year, SMP Mutiara Baru had 2 math teachers. Grade VII students of SMP Mutiara Baru Bekasi study mathematics for 12 hours of lessons in one week with a duration of 40 minutes in one lesson hour. Class VII consists of 1 parallel class.

Table 2. List of final exam scores for semester I  
 Academic Year 2019/2020 Class VII  
 standard value = 80

No	Name	Knowledge		Attitude
		Score	Result	

1.	A	36	D	C
2.	AM	93	A	B
3.	AN	78	C	B
4.	C	78	C	B
5.	D	90	B	B
6.	DE	27	D	B
7.	DW	25	D	B
8.	F	31	D	C
9.	G	97	A	B
10.	M	43	D	B
11.	MK	47	D	B
12.	N	94	A	B
13.	NU	37	D	C
14.	R	78	C	B
15.	RI	78	C	B
16.	S	80	C	B
17.	SA	78	C	B
18.	SN	35	D	B
19.	T	78	C	B

Of the 19 students there were nine students who participated in the interview, the interview was conducted because based on the questionnaire 9 students had a total score lower than the scores of their peers.

**b. How Students Manage Anxiety in Mathematics Subjects**

Based on observations made by researchers at SMP Mutiara, it was found that there were 9 students who experienced high anxiety based on the questionnaire questions. All questionnaire questions given to students are positive questions. The lower the value given by students, the lower the self-confidence and efficacy that students have. Through the dimensions of belief and generality, it was found that the results of student self-confidence in the school were low on average, and the ability of students to cope with disappointment was also low. This data is supported by a list of values, so there were 9 students who needed to be called to conduct interviews related to self-efficacy and their anxiety about mathematics. interviews with 9 students conducted on March 4, 2020 at 10:45 am after the student break. From the results of interviews and questionnaires conducted by researchers on 9 students, it was found that the methods students used to manage anxiety in mathematics after receiving self-efficacy material included taking a breath and then looking at a book and trying to ask friends like what SN did. dared to ask teachers like F and A. Meanwhile DW and R controlled my anxiety by asking the teachers and seniors. Besides that, with smiles and enthusiasm, students began to dare to come forward and talk about their feelings to the teacher. As did R, DE, and S.

**c. Mathematics Teacher Actions Dealing with Student Anxiety**

Through interviews conducted with mathematics teachers on March 4, 2020 at 12:15 p.m. after a break from the mathematics anxiety faced by students when the teacher was teaching, it was found that the results of the actions taken by mathematics teachers in dealing with student disappointment were to provide reinforcement and motivation when delivering learning material in class. Mathematics teachers realize that generally students are anxious about mathematics due to the lack of readiness of students to face mathematics subjects. One example of a student's unpreparedness is missed homework, missed books, arriving late, going back and forth to the toilet, or even being sleepy in class. For that motivation and reinforcement must be given, not infrequently the teacher gives rewards and punishments to be part of giving reinforcement for students. Interview by telephone on April 10, 2020 during the pandemic the mathematics teacher supported and strengthened the learning conditions of students at home, students were expected to continue to complete assignments and homework well, initially the teacher had difficulties when starting total learning at home, but the teacher continued to strengthen and contact Personally students to minimize the possibility of students experiencing confusion with independent learning techniques at home. The teacher also revealed that students really need to make new adaptations to the current pandemic conditions, but as a teacher even though I am confused myself, I still try to calm the students and convince them to be able to face mathematics. Through the guidance and counseling teacher at school I need to do self-efficacy on students during the pandemic, so what I do is self-efficacy efforts to reduce the anxiety experienced by students while facing math learning at home in the conditions of the Covid-19 pandemic

The following is a list of UTS scores for semester II of SMP Mutiara Baru students after receiving reinforcement from a math teacher.

Table 3. List of Middle Exam scores for Semester II  
 Academic Year 2019/2020 Class VII  
 standard value = 80

No	Name	Knowledge		Attitude
		Score	Result	
1.	A	40	D	B
2.	AM	90	A	A
3.	AN	80	C	B
4.	C	76	C	B
5.	D	90	B	A
6.	DE	35	D	B
7.	DW	34	D	B
8.	F	32	D	B
9.	G	98	A	B
10.	M	45	D	B
11.	MK	45	D	B
12.	N	95	A	B
13.	NU	39	D	B
14.	R	75	C	B

15.	RI	79	C	B
16.	S	83	C	B
17.	SA	80	C	A
18.	SN	40	D	B
19.	T	80	C	B

## CONCLUSION

The conclusion that can be drawn in this study is that managing student anxiety during a pandemic is indispensable, mathematics teachers must cooperate with guidance and counseling teachers to build self-confidence and reduce anxiety through self-efficacy in mathematics subjects. Based on the results of the research, self-efficacy materials can be recommended to be implemented by SMP Mutiara Baru schools to reduce student anxiety about mathematics during the pandemic.

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