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The Relationship between Adversity Quotient and Early Childhood Cognition

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ABSTRAK

Kegiatan pembelajaran yang kurang menyenangkan berdampak pada kecerdasan anak yang rendah. Padahal adversity quotient sangat diperlukan anak usia dini agar dapat membantu mereka dalam mengatasi kesulitan yang sedang dihadapinya. Sejauh ini belum ditemukan penelitian yang membahas hubungan antara adversity quotient dengan kemampuan hasil belajar kognitif anak usia dini. Berdasarkan hal tersebut, penelitian ini bertujuan untuk menganalisis hubungan adversity quotient dengan kemampuan hasil belajar kognitif anak usia dini. Penelitian ini termasuk jenis penelitian kuantitatif dengan pendekatan korelasi. Pengambilan sampel dilakukan dengan metode purposive sampling dengan jumlah sampel yaitu 38 anak. Metode dan instrumen yang digunakan untuk mengumpulkan data adalah angket dan tes. Data dianalisis menggunakan teknik analisis statistik inferensial denganbantuansoftware SPSS.Hasil penelitian menunjukkan bahwa terdapat korelasi antara adversityquotient sebagi variabel independent dengan prestasi belajar siswa sebagai variabel dependen, meskipun tidak kuat. Adversityquotientmemberikan kontribusi terhadap kemampuan kognitif belajar anak usia dini. Berdasarkan penghitungan analisa regresi (korelasional) antara kelompok variabel diperoleh kecerdasanadversity quotient memiliki hubungan terhadap kemampuan hasil belajar kognitif anak usia dini. Oleh karena itu, dapat disimpulkan bahwa kecerdasan adversity quotient berdampak pada hasil belajar kognitif anak usia dini. Penelitian ini berimplikasi pada pemberian pemahaman bahwa kecerdasan adversity quotient yang dimiliki siswa perlu ditingkatkan karena berpengaruh pada kemampuan kognitif mereka.

ABSTRACT

Learning activities that are less enjoyable have an impact on children's low intelligence. Even though an adversity quotient is very necessary for young children to be able to help them overcome the difficulties they are facing. So far, no research has been found that discusses the relationship between the adversity quotient and the cognitive learning outcomes of early childhood. Based on this, this research aims to analyze the relationship between the adversity quotient and the cognitive learning outcomes of early childhood. This research is a type of quantitative research with a correlation approach. Sampling was carried out using a purposive sampling method with a sample size of 38 children. The methods and instruments used to collect data are questionnaires and tests. Data were analyzed using inferential statistical analysis techniques with the help of SPSS software. The results of the research show that there is a correlation between the adversity quotient as an independent variable and student learning achievement as a dependent variable, although it is not strong. Adversity quotient contributes to the cognitive learning abilities of early childhood. Based on calculations of regression (correlation) analysis between groups of variables, it was found that the adversity quotient had a relationship with the cognitive learning outcomes of early childhood. Therefore, it can be concluded that the adversity quotient intelligence has an impact on the cognitive learning outcomes of early childhood. This research has implications for providing an understanding that the adversity quotient intelligence possessed by students needs to be improved because it affects their cognitive abilities.

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1. INTRODUCTION

The problems of social life in the 21st century require a more massive paradigm shift. 21st century skills encourage sustainable development so that innovation takes center stage (Neumann et al., 2021; Wang et al., 2021). 21st century education places greater emphasis on easily accessible information, data computing, automation of routine work, and effective communication between individuals (Zayyinah et al., 2022; Husain & Kaharu, 2021; Munoto, 2018). One influence that can be seen today is the emergence of many education and distance learning programs that use the internet as a medium (Trude et al., 2021; Johnson et al., 2019). Learning that is suitable for young children is a fun learning activity. Effective learning is when a teacher provides an innovative learning atmosphere and students feel happy participating in learning (Astuti et al., 2022; Goumenou & Tsatsakis, 2019). However, when teachers lack initiative in teaching, it results in student boredom. This was revealed by previous research findings which stated that teacher-centered learning activities had an impact on students who were bored when participating in learning activities (Nikmah et al., 2019; Wulandari et al., 2019).Especially teachers who are still comfortable teaching in the old culture, so it is very difficult for them to keep up with current developments. Previous research states that students who are bored while studying have an impact on low student learning outcomes (Arianti et al., 2019; Prabaningrum & Putra, 2019).Thus, as a teacher, you should be a facilitator who educates in improving students' cognitive abilities (Dauvermann & Donohoe, 2019; Liu, 2019).In the learning process at school, students are expected to be able to obtain good and optimal cognitive abilities, because this is a success parameter used to measure the level of success of learning undertaken by young children..Cognitive abilities are the basis for a child's ability to think, therefore cognitive development is related to the level of intelligence (intelligence) which marks a person with learning ideas (Li et al., 2019; Toomey & Heo, 2019). Cognitive development emphasizes a genetic process, namely a process based on biological mechanisms.

Cognitive development by Jean Piaget succeeded in integrating elements of psychology, biology and logic in providing a comprehensive explanation of how a child acquires knowledge (Martins et al., 2019; Schwaiger et al., 2019).Cognitive development illustrates that children must learn naturally so that the learning process can be carried out based on their abilities. Thus, parents should not urge and pressure children with learning that is beyond their readiness, because this will have fatal consequences for the child's mental state (Trauelsen et al., 2019; Weiss et al., 2019).Each child's cognitive development emphasizes changes or stability in mental abilities, such as learning, attention, memory, language, thinking, reasoning and creativity. Cognitive development is described as the combined result of maturation of the brain and nervous system, as well as adaptation to the environment (Chou et al., 2018; Hoffmann et al., 2018).Piaget emphasized that children's ability to adapt to their environment has been present since the child was born, so that the child's learning process is in line with the stages of development. The characteristics of early childhood cognitive development must be taken seriously in the learning process. The physical environment and the role of adults are very important to ensure the environment can stimulate children to ask questions about their thoughts on their experiences (Sari & Rahma, 2019;Stein et al., 2016).

Cognitive abilities can be understood as children's ability to think more complexly and the ability to reason and solve problems (Khotimah et al., 2023; Knauer et al., 2020). Cognitive abilities can be improved by providing appropriate stimulation (Fajzrina et al., 2023; Lean et al., 2018).Many factors cause different levels of cognitive development in early childhood. The factor that supports cognitive development in early childhood is the maturity of each child's body organs (Yamauchi et al., 2019; Purewal et al., 2018).The older a child gets, the more each child's body organs develop, which will have an impact on the further development of their abilities. The most important thing in instilling students' cognitive abilities is also based on the intelligence level of the adversity quotient. This intelligence is a must for every young child to have the skills to deal with problems by finding solutions (Gong & Zhu, 2019; Hamamouche & Cordes, 2019). Adversity quotient intelligence in the form of resilience and fighting power which can train divergent thinking skills when encountering various types of problems and finding ways to solve the various complexities of the problems faced (Hastuti et al., 2018; Kartika et al., 2021; Mistry et al., 2019). Adversity quotient intelligence is the ability of young children to survive in difficult or quite complex situations. If contextualized with early childhood lessons, a child can survive and try to find solutions in facing difficulties until they find a way out. Adversity quotient intelligence is said to be intelligence in overcoming difficulties by determining various strategies, being a determinant in solving problems, influencing will, attitudes, abilities and performance. Adversity quotient is needed to achieve success in a child's life (Li et al., 2019; Vuong et al., 2019).Adversity quotienthas four dimensions, namely control, ownership, reach, and endurance.

To ensure the cognitive development of early childhood, symbolic or abstract abilities can be observed, for example communicating, interacting, playing, reading, calculating, etc (Simanjuntak & Siregar, 2023;Hoppen & Chalder, 2018).Previous research findings stated that students who have a high adversity

quotient will be able to achieve better achievements (Chabibah et al., 2019; Susanto & Sofyani, 2019). Other research states that the adversity quotient is an intelligence possessed by individuals in dealing with the difficulties they experience (Vahter et al., 2020; Bartha-Doering et al., 2019).Adversity quotient intelligence has a continuous relationship with early childhood cognitive abilities (Foster et al., 2019; Ristiana, 2020). However, based on the literature review that has been carried out, no research has been found that discusses the relationship between adversity quotient and cognitive abilities in early childhood. Based on this, the aim of this research is to analyze the relationship between adversity quotient and cognitive abilities in early childhood. Through this research, it is hoped that it can provide an understanding that the adversity quotient intelligence possessed by students needs to be improved because it affects their cognitive abilities. In this way, teachers and other parties can pay more attention to students' adversity quotient intelligence.

2. METHOD

This research is quantitative research withcorrelational method. The quantitative approach in this research takes the form of a research process, hypothesis, and data analysis, to conclusions using aspects of calculation and certainty of numerical data.The population in this study was the entire Aisyiyah 58 Surabaya Kindergarten, Surabaya city. Sampling was carried out using a simple random sampling method, namely sampling with certain considerations based on the interests or objectives of the research. Based on this thenThe sample in this study was group A of early childhood Kindergarten Aisyiyah 58 Surabaya, totaling 38 children. The methods used to collect data are questionnaires and tests. The questionnaire method was used to collect research data in the form of the adversity quotient. Meanwhile, the test method is used to collect data in the form of early childhood cognitive learning outcomes after learning. The instruments used to collect data were questionnaire sheets and test questions. The instruments in this research can be presented in Table 1.

Table 1. The Adversity Quotient Research Instrument

	Statement	SS	S	TS	STS
1.	I did not give up in solving the questions given by the teacher				
2.	I was never confused when working on the questions given by the teacher				
3.	I tried to survive on my own doing the questions given				
4.	I don't give up easily				
5.	I can survive in difficult situations when working on questions				
6.	I am capable and able to work on questions that are too difficult				
7.	When I look at the questions, I can decide the right way to do the questions.				
8.	Even though the questions are difficult, I try not to cheat				
9.	I was happy and remained calm working on the questions given				
10.	It didn't take me long to understand the questions the teacher gave				
11.	I tried harder to understand how to do the questions given				
12.	I did not give up on completing and working on the questions given				
13.	I am satisfied when I have found the answer to the question given				
14.	I tried to do the questions even though I didn't know how to do it				
15.	I kept trying to find a way out until I managed to solve the problem given				
16.	I continued working on the questions even though in the end I didn't get the answer.				
17.	I never gave up on the questions given by the teacher				
18.	I kept trying to be able to work on the questions until I found the answer				
19.	I will continue to study until I get maximum achievement				
20.	I will try to do the questions as they are and hope for a good grade				

The data analysis technique used in this research is inferential statistics. Inferential statistical data analysis techniques are used in correlational research to make conclusions about relationships between variables based on samples that represent a larger population. Inferential statistics allows broader conclusions to be drawn from samples to populations. This is done through hypothesis testing, making predictions, and generalizations based on random samples from the population. Meanwhile, data analysis in this research used SPSS software.

3. RESULT AND DISCUSSION

Result

Observations have been carried out to find outThe relationship between the Adversity Quotient and the cognitive learning outcomes of early childhood children at Kindergarten Aisyiyah 58 Surabaya. This research focuses on research data sources in improving the expressive language skills of early childhood. The learning method used is role playing to optimally improve children's numeracy skills. Based on the pretest and posttest that have been carried out, the results show that the adversity quotient and cognitive learning abilities of early childhood have a fairly good relationship. The subjects in this research were early childhood children from Kindergarten Aisyiyah 58 Surabaya. The number of subjects involved in this research was 13 boys and 25 girls, so that the total number of young children involved was 38 students.In this study, heteroscedasticity testing was carried out to see whether a regression model had unequal variances. A good regression model is one where heteroscedasticity does not occur.To see normally distributed data, look at the normal probability plot on the scatter plot. The results of the normality test in this research can be presented in Figure 1.

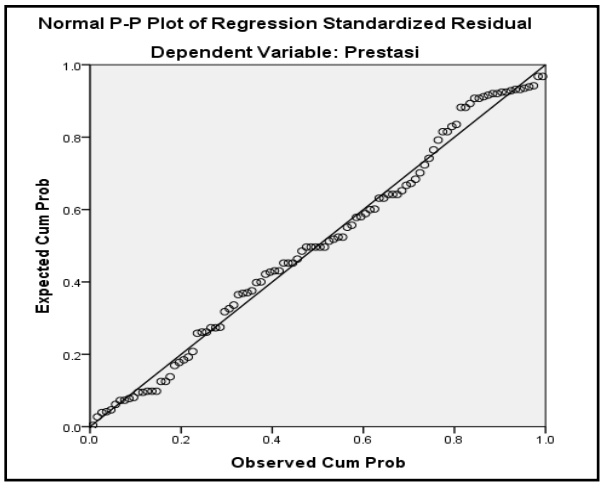

Figure 1. The Plot of Adversity Quotient Normality Test and Children's Cognitive Learning Achievement

The normality test results show that the second alternative significance coefficient value is used in analyzing the data. The direction of the line from research data can be used in the normality test using the PP Plot.In the picture above, it is known that the data with the Normal PP Plot on the religiosity value variable is stated to be normally distributed or close to normal. This is because the points in the distribution image appear to be spreading or approaching around the diagonal line and the distribution of the data points is in the same direction as following the diagonal line.Apart from that, it can also be seen that the plotting data (dots) follow a diagonal line, so it can be concluded that this research has a normal distribution.The graph also shows the relative image of the points which are spread out close to a straight line. Then it is stated that there is a normal distribution in the residual data which causes an adversity normality test quotient with student achievement met. Meanwhile, the results of the heteroscedasticity test in this study can be presented in Figure 2.

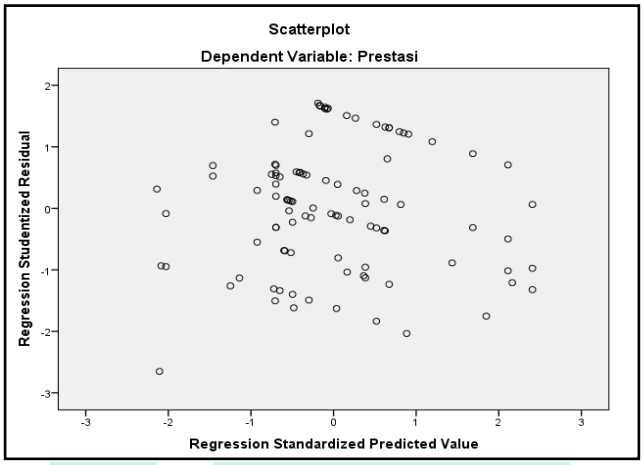

Figure 2. The Heteroscedasticity Test Results

Based on the output results of the scatterplots in the image above, it is known that the data points spread above and around zero, the points do not gather only at the top or bottom, the distribution of data points does not form a wavy pattern that widens then narrows and widens again, and the distribution of points -unpatterned data points. Thus, it can be concluded that there is no heteroscedasticity problem. This means that a good and ideal regression model is fulfilled. In order to further strengthen the results of the heteroscedasticity test, the Glajser method was carried out. The basis for determining this is that if the significance value is more than 0.05 then heteroscedasticity does not occur. The results of this research's heteroscedasticity test can be presented in Table 2.

Table 2. The Heteroscedasticity Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	66.321	5.987		11.077	0.000
	Cognitive	0.187	0.105	0.182	1.781	0.078
	Adversity	0.061	0.072	0.095	0.858	0.393

The table explains the significance level of adversityquotient 0.078 > 0.05 learning management 0.393 > 0.05, and parenting style significance level 0.14 > 0.05. This means that the adversity variable has a significance level greater than 0.05, thus indicating that heteroscedacity does not occur. The first hypothesis proposed in this research is H_o (there is no correlation between students' adversity quotient and students' learning achievement in Surabaya) and H_1 (there is a correlation between students' adversity quotient and cognitive learning achievements of early childhood children at Aisyiyah 58 Surabaya Kindergarten). To determine the relationship between the adversity quotient and student learning achievement, simple regression analysis was carried out. The results of data analysis show a summary regression model of the relationship between adversity quotients tudents with student learning achievement is R= 0.584. This shows that there is a correlation between adversity as an independent variable and student learning achievement as a dependent variable, although it is not strong, while the Rsquare value = 0.341 which means that adversity contributes 0.341 or 34.1% to student learning achievement. The coefficient value B = 1.519 indicates that an increase in adversity will result in an increase in learning achievement of 1,519.

The significance value is 0.00 and the t_{count} value is 7.088, meaning the t_{table} value is greater than the t_{table} value for a sample size of 100, namely 1.660 or t_{count} 7,088 > t_{table} 1.660 with a significance level of p = 0.007 < 0.005. Thus, it can be concluded that H_0 is rejected and H_1 is accepted, which means there is a correlation between student adversity and student ability in international standard Muhammadiyah schools. Meanwhile, the contribution is 34.1% to student learning achievement. The coefficient value of adversity determination on students' cognitive abilities can be presented in Table 3.

Table 3. The Coefficient of Determination of Adversity on Students' Cognitive Abilities

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.545	0.213		40.083	0.000
	Zscore (Adversity)	1.519	0.214	0.584	7.088	0.000

Unstandardize Coefficients (Constant) is a regression constant denoted by a, which means that if there is no change in the variableBased on the calculation of the regression analysis (correlation) between the independent variable group (X) and the dependent variable group (Y) above, the coefficient value for the independent variable group is 0.213 and the dependent variable group is 0.214. The t_{value} per independent variable from calculating linear regression analysis between groups of variables obtained a calculated t value for a constant value of 40,083. Next, the sig value for the constant value was 0.367, the sig value for the independent variable group was 0.000, and the dependent variable group was 0.000. So pragmatically it means that the independent variable is intelligence adiversity quotient in this study there is a relationship with the dependent variable, namely the cognitive abilities of early childhood at TK Aisyiyah 58 Surabaya.

Discussion

The results of data analysis show that there is a significant relationship between the independent variable (free) and the dependent variable (dependent)This is caused by several factors. First,intelligence adversity quotient can improve the cognitive abilities of young children. This is in line with previous

research which states that intelligence adversity Early childhood quotient will have an impact on personal intelligence, especially in cognitive abilities (Huda & Damar, 2021; Patria & Silaen, 2020). Adversity quotient intelligence is not just an individual child's ability to overcome difficulties that occur, but rather changes his view of a difficulty as a new opportunity to achieve the desired success. Adversity quotient can be influenced by factors such as competitiveness, productivity, creativity, motivation, risk taking, perseverance and learning (Hanifa, 2017; Wulandari et al., 2020). Previous findings also state that the adversity quotient brings someone to build intelligence in analyzing difficulties and developing solution strategies (Kartika et al., 2021; Susanto & Sofyani, 2019). Children with high emotional intelligence will feel more comfortable recognizing challenges and designing ways to overcome them. This is in line with previous research which states that children who have high AQ will be more comfortable in identifying difficulties and developing solution strategies (Ristiana, 2020; Libraeni & Yadnyana, 2018).

Second, Adversity quotient intelligence can help children solve problems. Adversity quotient intelligence is a benchmark for determining the level of response to difficulties and is a practical tool for improving responses to difficulties faced by young children (Mokoginta, 2022; Amir et al., 2017). Not all young children are able to overcome difficulties and challenges in the learning process, of course this will affect their learning achievements. Adversity quotient intelligence is needed to achieve success. A child who has a high adversity quotient can be successful even though there are many obstacles facing them. Children with high AQ do not immediately give up and do not let difficulties destroy their dreams and aspirations (Afri et al., 2023; Hidayat & Sariningsih, 2018). AQ leads one to see adversity as multiple opportunities rather than obstacles. Therefore, children who have high AQ will be happier to overcome difficulties and develop solution strategies. Third, adversity quotient intelligence can improve children's achievement. Early childhood children who have a high adversity quotient will continue to achieve better achievements on an ongoing basis. The higher the level of adversity quotient intelligence, the greater the possibility for someone to be optimistic and innovative in solving the problems they face (Mahrawi, Usman, & Musliyani, 2021;Huda & Damar, 2021). Adversity quotientis intelligence that is able to change obstacles into better opportunities, so this intelligence is a child's perspective on facing difficulties and their way of getting out of the difficulties they face.

Adversity quotient has an impact on the cognitive learning outcomes of early childhood (Nuraeni et al., 2022; Megawati & Megawanti, 2021).Progress in young children's understanding is influenced by how well they overcome the challenges they face. This is in line with previous research which revealed that improving the cognitive learning outcomes of early childhood is influenced by the child's intelligence adversity quotient (Khumairoh et al., 2020; Matahari, Wahyudin, & Johan, 2020). Previous research findings also confirm that the adversity quotient can influence students' thinking styles (Haeruddin & Hadijah, 2019; Ahmar et al., 2018). Other research also states that the adversity quotient can improve students' abilities (Pertiwi et al., 2019; Hidayat et al., 2018).The cognitive domain is closely related to thinking abilities, including the ability to memorize, understand, apply, analyze, synthesize and evaluate (Fitria et al., 2022; Merianah, 2019). Cognitive abilities are very important to instill from an early age to prepare for the next level of education (Ayu & Manuaba, 2021; Merianah, 2019). Early childhood cognitive learning outcomes must be improved with various learning alternatives. Every child has a different level of cognitive learning ability, so it is important for educators to pay attention to this. This is in line with the results of previous research which revealed that the cognitive learning abilities of each child are different, so educators need to pay attention to them in their learning activities (Kartika et al., 2021; Merianah, 2019). Changes can be made in several ways, such as using methods that suit the needs and level of understanding of young children (Nasution, 2020; Pertiwi et al., 2019). The results of this research can provide the latest information regarding the correlation between the adversity quotient and the cognitive learning outcomes of early childhood. This research is expected to convey information that increasing students' adversity quotient intelligence is very important because it can affect their cognitive abilities. It is also hoped that teachers and related parties can pay extra attention to developing students' adversity quotient intelligence. The implication of this research is that it can provide an understanding that the adversity quotient intelligence possessed by students needs to be improved because it affects students' cognitive abilities. The limitation of this research is that it was only conducted on a limited population, so the research results may not be directly applicable to a wider population. Future research could expand the population coverage to obtain more comprehensive results.

4. CONCLUSION

The results of the data analysis show there is a correlation between adversity quotients as an independent variable and student learning achievement as the dependent variable, although not strong. Apart from that, the adversity quotient makes a major contribution to the learning outcomes of early childhood. Based on the calculation of regression analysis (correlation) between groups of variables, the

results obtained were that the intelligence adversity quotient has a relationship with the cognitive abilities of early childhood at Kindergarten Aisyiyah 58 Surabaya. It can be concluded that the intelligence-adversity ratio can improve the cognitive abilities of young children. The latest information in this research can provide an understanding that it is very necessary to increase students' adversity quotient intelligence because it can affect their cognitive abilities.

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