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Original Article

Qualitative Study of the Incidence of Autism among Students at State Special School (SLB) 1 Parepare City

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ABSTRACT

This research explores the risk factors for the occurrence of autism among students at Special Needs School (Sekolah Luar Biasa or SLB) Negeri 1 in the city of Parepare. Autism is a developmental disorder that affects a child's social interaction, communication, and behavior. The exact cause of autism is still unknown, but several factors such as genetics, environment, and prenatal factors have been identified as possible causes. This study used a qualitative method, conducting in-depth interviews with parents of autistic students, therapy counselors, and teachers of autistic students. Results of the research indicate that traditional factors such as a history of medication during pregnancy, viral infections, and the birth weight of the baby do not have a significant association with autism among students at SLB Negeri 1 Parepare. However, other factors such as imbalances in the nervous system, exposure to chemicals, and exclusive breastfeeding for less than six months may contribute to the occurrence of autism.This research emphasizes the need for a deeper understanding of the risk factors for autism that may vary in different populations. Recommendations include avoiding the consumption of non-prescribed medications during pregnancy, reducing exposure to harmful chemicals, and promoting exclusive breastfeeding for a minimum of six months. The government also needs to raise awareness about autism and provide appropriate facilities for children with this disorder. This research contributes to a better understanding of the risk factors for autism at SLB Negeri 1 Parepare.

Keywords: Autism, Children, Qualitative, Risk Factors

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INTRODUCTION

Autism in children is a pervasive developmental disorder that affects social interaction, communication and behavior and is recognized before the age of 3 years [1] . Until now the cause of autism is not known for certain. There are several factors that are thought to cause autism [2] . Among them are genetic, environmental, metabolic and central nervous disorders, infections during pregnancy (rubella), digestive disorders to heavy metals, abnormal brain structures such as hydrocephalus can also cause autistic children [3].

Based on data from *the Center for Disease Control and Prevention* (CDC) in 2018 it was explained that the incidence of people with autism has increased, from 1:150 population in 2000 to 1:59 in 2014. Autism itself mostly affects boys. with a prevalence of 1:37, while in girls it is 1:151. The prevalence of autism in Brazil is around 0.3% in school-

aged children, and the majority in boys is 80% with a ratio of 4:1 [4] .

In line with that, the results of a study conducted by *the Center for Disease Control and Prevention* in 2013 stated that the prevalence of autism in the world currently ranges from 0.15-0.20%, including Indonesia [4] . Meanwhile, the Statistics Data Center for Special Schools noted that the number of students with autism in Indonesia in 2018 was 128,510 [2] , while for the Province of South Sulawesi itself in recent years it has been known that no less than 1,000 children under the age of five (toddlers) have autism [5] .

The Special School Statistical Data Center recorded the number of autistic students in Indonesia in 2018 as many as 128,510 [5] , while for the Province of South Sulawesi itself in recent years it has been known that no less than 1,000 children under the age of five (toddlers).) suffers from autism [6].

Based on an initial survey conducted by researchers at the State Special School (SLB) in Parepare City, it is known that there are 16 people with autism. With ages 7 to 17 years with different characteristics. There were 12 boys and 4 girls.

The risk of autism in children is divided into three, namely during pregnancy or prenatal, postpartum or perinatal, and infancy or neonatal. This is in line with the results of previous research which stated that perinatal and neonatal factors are still susceptible to causing autism [7] .

Factors such as a history of bleeding during pregnancy, a history of seizures experienced by children, and a history of low birth weight (<2500 grams) have a relationship with the incidence of autism in children. Meanwhile, a history of drug use and a history of infection during the child's pregnancy did not show a significant relationship with the incidence of autism in children [1] .

This statement is not in line with research [8] which states that preeclampsia, gestational diabetes, bleeding during pregnancy, consumption of drugs during pregnancy, and infection during pregnancy are also prenatal risk factors for autism[8,9,10].

Several studies have found that there is a relationship between the incidence of prenatal and perinatal complications in cases of autism, compared to the non-autistic group. Complications that are often reported related to autism are bleeding during pregnancy, meconiumin amniotic fluid, use of drugs, including hormonal drugs. In addition, a relationship was also found between autism and central nervous system disease as a result of viral infection, measles in the mother (maternal rubella, especially with deaf or blind babies), senileconuria, encephalitis, meningitis, metabolic disorders, and tuberous sclerosis [11].

Seeing the frequency of occurrence of autism which continues to increase from year to year which has an impact on the life and development of children and their families, and because autism is a multifactorial problem and is also related to epigenetic factors, the researcher is interested in conducting research. Qualitative research regarding the incidence of autism in students at SLB Negeri 1 Parepare City.

The purpose of this study was to describe how a history of autism risk occurs in students at the State Special School (SLB) 1 Parepare City

METHOD

Qualitative research design with a phenomenological approach understand the phenomena experienced by research subjects holistically and through descriptions in the form of words and language in a special natural context [9] .

The research location which was also the object of this research was carried out at the State Special School (SLB) 1 in the city of Parepare. At the time of the research it was used for approximately one month.

The selection of informants in this study was carried out based on certain criteria, by selecting individuals who met the following criteria: having the characteristics of an autism disorder which was strengthened by an expert diagnosis; permitted by parents and expert teachers to be studied; and is an autistic student at SLB Negeri 1 Parepare City. Two autistic boys aged 12 years and one autistic girl aged 11 were successfully recruited as informants represented by their parents. Supporting informants are important people other than the three subjects, namely the therapist and the therapist in charge.

Research data was collected using interview, observation and document techniques. The interviews conducted were in-depth interviews with general instructions. This type of interview requires the interviewer to

create an outline and elaborate on the points being asked . This interview framework contains a list of questions containing the theme and flow of discussion as a control guide. Data collection can be done by applying the triangulation method.

The data from the study were analyzed using qualitative techniques, specifically thematic analysis. Responses from interviews were transcribed, coded, and categorized to identify recurring themes and patterns related to autism risk factors. Triangulation was used to cross-reference data from various sources, ensuring robust and credible findings. Ethical considerations and participant validation were integral to maintaining data integrity, resulting in meaningful conclusions and recommendations for addressing autism risk factors among students at SLB Negeri 1 Parepare.

The data analysis used in this research is deductive analysis, in which the data obtained in the field is generally then described in the form of conclusions or of a specific nature. With three methods, namely data reduction, data presentation, and drawing conclusions.

RESULTS

Informant Characteristics

A total of 5 people who became informants in this study were divided into 3 types of informants, with the number of main informants namely 3 parents of autistic students, key informants namely 1 therapist supervisor and additional informants 1 teacher of autistic students at SLB Negeri 1 Parepare City . The characteristics of the informants can be seen in Table 1.

Table 1. Characteristics of Research Informants

Informant Type	Informant Characteristics	
	Age	Initials
Parent	39 Years	AH
Parent	39 Years	WE
Parent	46 Years	AL
Therapist's guide	40 years	H.J
Teacher	32 years	MI

Source: Primary Data , 2023

History of Drug Consumption

From the results of interviews conducted by researchers with informants, it can be described that the variables of drug consumption when the mother was pregnant with an autistic child indicated that all informants stated that they only consumed vitamins. This is reinforced by the results of interviews conducted by researchers with informants, as follows:

> " *If you are taking medication, you have been given blood-boosting tablets or vitamins according to the doctor's dosage"* (AS, 39 years old)

> *"No, I have also never experienced an illness that required me to take long-term medication during pregnancy"* (AL, 46 years old)

History of viral infection

The results of research conducted by researchers with informants stated that the majority of informants had no history of viral infections such as measles, rubella, herpes simplex, mumps, varicella, cytomegalovirus, toxoplasma, and syphilis. This is reinforced by the results of interviews conducted by researchers with informants, as follows:

> *"Thank God there were never any problems and the delivery process was normal. When I was pregnant I was injected with a vaccine"* (AS, 39 years)

> *"Based on the information after the assessment of the parents, I have not found anyone who has a history of problems during pregnancy, let alone has a history of viral infections"* (MI, 32 years)

History of Prenatal Bleeding

Based on interviews conducted by researchers with informants, it can be described that the variable history of bleeding when the mother was carrying a child with autism showed that all informants stated that they had no history of prenatal bleeding. Which is reinforced by the results of interviews conducted by researchers with informants, as follows:

> *"Not really, it's just that I gave birth by caesarean section with a gestational age of 9 months" (AL, 46 years)*

"It's absolutely nothing, even when I was pregnant I didn't feel any heavy cravings (nausea/vomiting)" (AS, 39 Year)

"Nothing, just constant nausea because I can't eat" (AH, 39 years old)

"Based on the theory that has been mentioned, looking at the experience of the parents after the assessment was also said that they had never experienced bleeding during pregnancy" (HJ, 40 years)

History of Baby's Birth Weight

Based on the results of interviews conducted by researchers, it can be explained that the variable history of birth weight is not a factor in the history of autism in students at SLB Negeri 1 Kota Parepare. This is reinforced by the informant's statement which said:

"Normal, 3.5 kg" (AL, 46 Years)

"Normal 2.5 kg" (USA, 39 Years Old)

"Normal 3.5 kg and not premature " (AH, 39 years)

"Nothing, they were born with normal weight and their mother's age is also normal as far as I know" (MI, 32 years)

DISCUSSION

History of Drug Consumption

Consumption of drugs can selectively inhibit the release of Serotonin during pregnancy which will cause abnormal serotonin levels that cause autism.

The results of this study stated that the consumption of drugs when the mother was pregnant with an autistic child was not a factor in the history of autism in students at SLB Negeri 1 Parepare City. The same statement was also shared by all informants, namely they had no history of consuming drugs and only consumed vitamins given from the hospital or health center.

This research is in line with that research states that pregnant women have no history of taking drugs that are at risk of causing autism and all samples state that they take vitamins during pregnancy[1].

It is also supported by research [7] which states that there is no relationship between a history of drug consumption and the incidence of autism in children [7].

Unlike the research conducted by [8] which shows that mothers who have a history of drug consumption and give birth to autistic children are greater when compared to mothers who have children who do not experience autism [5].

Some previous research results also show that drug consumption in pregnant women on the incidence of autism in children can affect brain development in the fetus [10]. Conversely, if the mother consumes vitamins, cod fish, vitamin A, vitamin D3, Omega-3, EPA, DHA, vitamin E, vitamin B12, folic acid, vitamin B6, calcium, magnesium and iron. During pregnancy it can maintain the health of the mother and fetus [11] .

History of viral infection

Maternal infection mechanisms during pregnancy can lead to neurodevelopmental disorders such as autism. There is a direct effect through the passage of infectious organisms across the placenta and into the fetal environment, or an indirect effect through activation of the mother's immunity [12].

The results of the research conducted by the researchers stated that most of the informants had no history of viral infections such as measles, rubella, herpes simplex, mumps, varicella, cytomegalovirus, toxoplasma, and syphilis [13]. So it can be illustrated that a history of viral infection is not a history of autism in students at SLB Negeri 1 Kota Parepare.

This research is in line with research conducted by [1] which stated that pregnant women who were not infected with the virus also had autistic children so that it did not have a significant effect on the incidence of autism .

It is also supported by research [14] which states that there are no cases due to viral infections that cause these disorders autism .

In contrast to research [15] It is known that mothers who have a history of viral infections during pregnancy are at risk of 3.647 times greater for their children to experience autism than mothers who do not have a history of infection.

History of Prenatal Bleeding

Prenatal bleeding is considered a condition that has the potential to disrupt fetal

brain function. Bleeding during pregnancy is most often caused by complications in the placenta, including placenta previa and placental abruption. This condition results in disruption of the transport of oxygen and nutrients to the baby which results in disorders of the fetal brain [16] .

Based on the results of the study, it was stated that bleeding in mothers carrying autistic children was not a factor in the history of autism in students at SLB Negeri 1 Parepare City. All informants had the same statement, namely that they had no history of prenatal bleeding.

This research is in line with the results of research [1] which shows that a history of bleeding is not a cause of autism in children .

In contrast to several studies which state that pregnant women who experience bleeding can trigger autism in children. Bleeding will cause hypoxia in the fetus which results in brain abnormalities and increased dopaminergic activity [15] .

History of Infant Birth Weight

Polymorphisms in the insulin-like growth factor-I (IGF-I) gene were found to be associated with low birth weight (215 g weight loss compared to subjects without the polymorphism). This or other genes that influence low birth weight may also explain the link between SGA (*small gestational age*) and childhood autism. Similar to VLBW (*Very Low Birth Weight*), SGA is a marker of several prenatal risk factors that may be associated with autism such as *fetal hypoxia*, *placental pathology*, *preeclampsia*, or infection during pregnancy. Maternal risk behaviors, such as smoking, alcohol, drug use, or others have been associated with low birth weight, prematurity, and neuropsychiatric morbidity [5] .

Based on the results of interviews conducted by researchers, it can be explained that the baby's birth weight is not a factor in the history of autism, because most children with autism disorder have a history of normal birth weight, namely 2.5-4 kg.

This research is in line with research (Indah Sari, 2022) which states the results that the highest birth weight babies are 2.5-4 kg. this shows that the baby's birth weight is not a factor causing autism in children [16] .

In contrast to previous research which stated that children who have a history of Low Birth Weight (LBW) have a 3.98 times greater risk of experiencing Autism than children who have Normal Birth Weight [8] .

History of febrile seizures

Febrile seizures are seizures that occur when the body temperature increases (rectal temperature above 38°C) caused by extracranial. Febrile seizures are the most common neurological disorder that occurs in children, especially in the age group 3 months to 5 years [3].

Based on the results of the research, all informants stated that children with autism disorder in Parepare City [1] SLB students did not have a history of febrile seizures but often had tantrums, especially when they heard loud noises. Previously showed significant results between a history of febrile seizures and the incidence of autism [1] .

Fever with a temperature increase of 1°C will result in an increase in basal metabolism by 10-15% and oxygen demand will increase by 20%. at a certain increase in body temperature there can be a change in the balance of the neuron cell membrane and in a short time there is a diffusion of Potassium ions and Sodium ions through the membrane resulting in an electrical discharge. The release of this electric charge can spread throughout the cell or to the cell membrane next to it with the help of neurotransmitters so that seizures occur, so that children who have febrile seizures can make children experience autism. The most important factor is circulatory disorders which result in hypoxia thereby increasing capillary permeability and brain edema arising which results in damage to brain neuron cells [17] .

The difference in the results of this study could be caused by the location of the study, where it was also seen that there were differences in the characteristics of the respondents at the socio-economic level which led to differences in their food consumption habits or culture. that apply during pregnancy in certain families or customs [18]. However, apart from these five variables, the researchers found information that the incidence of autism in SLB Negeri 1 Kota Parepare is also caused by the following factors:

Nervous System Imbalance

From the results of interviews it is known that autistic children's disorders are caused by an imbalance in the nervous system which is influenced by neuroimmunity. So that abnormal neuroimmunity can affect the work of

the nervous system so that it triggers neuroinflammation which is one of the factors causing autism disorders.

In a book entitled Autism Spectrum Disorder it is also stated that the risk factors associated with the occurrence of Autism Spectrum Disorder are genetic factors, brain factors, and digestive factors [3] .

History of Chemical Exposure

The rapid increase in the prevalence of autism spectrum disorders (ASD) suggests that exposure to chemicals may have an impact on the development of ASD [19] . chemicals that are suspected to be associated with ASD, namely: smoke/tobacco, alcohol, air pollution, pesticides, endocrine disrupting chemicals, heavy metals, micronutrients, and fatty acids [20].

Based on the results of interviews conducted by researchers, it can be explained that a history of exposure to chemicals is a history of autism in SLB Negeri 1 Parepare City.

This statement is supported by previous research which states that environmental factors also contribute to autistic disorders [21]. These factors include air pollution, nutrients, and mercury [22] . A mother in the first month to the third month of pregnancy who does not pay attention to her food intake or pregnancy nutrition is more likely to give birth to a child with autism [23] .

Based on several previous research journals, it was stated that exposure to mercury contained in fish can cause slow neurodevelopment. As a result, it can reduce the fetus's IQ, disrupting language and motor development [7].

History of Cigarette Exposure

From the results of interviews conducted by researchers, there is a history of exposure to cigarette smoke in pregnant women which causes autism in children. This research is in line with previous research which stated that exposure to secondhand smoke in pregnant women can increase the risk of autism through various mechanisms, such as placental insufficiency, decreased blood flow and oxygen to the brain, changes in gene expression in the fetal brain, changes in nicotine receptors, changes in neurotransmitter activity persistent, as well as increased amounts of *intrauterine testosterone* [24] .

Previously , pregnant women who were exposed to cigarettes increased the incidence of autism in their children. Because it can expose the fetus to thousands of chemicals that threaten health, and affect the growth of brain function in the fetus [14].

Exclusive Breastfeeding

Based on the results of the interviews, it was found that there was a history of breastfeeding for less than 6 months in children with autism and had never even been given breast milk since birth and were only given formula milk.

This research is in line with previous research which stated that breastfeeding duration of less than 6 months is a risk factor for autism [25] .

This is also supported by the statement that children who are breastfed for less than six months are at risk of suffering from autism two times greater than children who are breastfed for more than six months. Breastfeeding patterns are associated with risk of autism [26] .

Giving Mother's Milk (ASI) provides many benefits for the growth and development of infants [27] . Colostrum is a very important part of breast milk and forms the immune system, provides growth factors and other protective factors for the baby, and has secretory IgA which provides protection against gastrointestinal infections [25].

The lack of exclusive breastfeeding has a serious impact on the survival of infants to adulthood. Babies who are not exclusively breastfed are suspected of having a negative contribution to autism.

CONCLUSION

Based on the results of the analysis and discussion, it was found that a history of consumption of drugs, viral infections, prenatal bleeding, baby's birth weight (LBW) and febrile seizures, was not a risk history for autism in SLB Negeri 1 Kota Parepare. However, researchers found that the incidence of autism is also caused by several risk factors, namely an imbalance of the nervous system, a history of exposure to chemicals, a history of exposure to cigarettes, and exclusive breastfeeding for less than six months.

Based on the results of the study, it is recommended for pregnant women to avoid consuming drugs other than doctor's recommendations, avoid childbirth with action

by preventing pregnancy complication factors such as preeclampsia, infectious diseases, monitoring conditions during pregnancy, exercising diligently, attending classes for pregnant women. For those who haven't joined, in order to increase their knowledge and confidence to give birth normally , besides that they also need to pay attention to the environment and avoid areas that are prone to exposure to chemicals, avoid exposure to cigarettes and breastfeed for at least 2 years.

The main reason for not including numeric or statistical data in this article is because the research employs a qualitative methodology. Qualitative methods are designed to gain in-depth understanding of individual experiences and potential contributing factors to autism. In qualitative research, the focus is on interviews, observations, and narrative analysis rather than quantitative data that can be measured with numbers.

This study aims to explore potential risk factors that may play a role in autism at SLB Negeri 1 Parepare, Indonesia. Therefore, the information obtained is more descriptive and narrative in nature rather than numerical or statistical. Given the limitations of resources and field accessibility, it is challenging to collect statistically significant data to support the research findings.

Additionally, qualitative research is often used in the initial stages of research to identify potential factors that can be further investigated with quantitative research in the future. Thus, this study can serve as a foundation for future research that focuses more on gathering statistical data.

However, adding statistical data in the future could be a valuable addition to validate the research findings. By combining qualitative data obtained from interviews and observations with quantitative data involving a larger sample, future research can provide stronger evidence of the relationship between specific factors and autism in the context of SLB Negeri 1 Parepare. This would strengthen the basis for more effective intervention and policy measures to support children with autism and their families.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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