

Risk Factor Profile of Children With Cerebral Palsy at Sambang Lihum Psychiatric Hospital

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Abstract

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Background:

Cerebral palsy is a common childhood motor disorder caused by non-progressive disturbances in the developing brain. Local descriptions of risk factors are needed to support prevention, early detection, and rehabilitation planning.

Methods:

This descriptive cross-sectional study was conducted at Sambang Lihum Psychiatric Hospital from 1-31 March 2025. Fourteen children with cerebral palsy who underwent therapy or care during the study period were included. Data were obtained from medical records and parent or guardian interviews using a structured questionnaire and were analyzed descriptively.

Result:

Most children were aged 1-5 years (8/14; 57.2%). Maternal age during pregnancy was mostly 18-35 years (10/14; 71.4%). Nine children (64.3%) were born at ≤ 37 weeks of gestation, and six (42.9%) had birth weight < 2500 g. Most children had no history of head trauma (78.6%), febrile seizure (57.1%), or brain infection (92.9%).

Conclusions:

The most prominent risk factors identified in this sample were prematurity and low birth weight. Strengthening antenatal monitoring, neonatal care, and early rehabilitation remains important for children at risk of cerebral palsy.

Introduction

Growth and development include two related processes: physical growth and maturation of body functions. Disturbances during early brain development may affect motor control and lead to long-term disability. Cerebral palsy (CP) is one of the most common motor disorders in childhood and is caused by non-

progressive injury or disturbance of the developing brain.

CP may occur due to prenatal, perinatal, or postnatal factors, including impaired fetal brain development, intrauterine infection, asphyxia, prematurity, low birth weight, neonatal jaundice, head trauma, and central nervous system infection. These factors may disrupt motor pathways and result in

spastic, dyskinetic, ataxic, or mixed clinical presentations.

Population studies have reported that the prevalence of CP ranges from approximately 1.5 to more than 4 per 1,000 live births, with an average of around 2 per 1,000 live births. In Indonesia, CP has been estimated to occur in 1-5 per 1,000 live births, with thousands of affected infants born each year. Prematurity and very low birth weight are consistently reported as important contributors to CP risk.

Sambang Lihum Psychiatric Hospital provides services for children with developmental disorders and disability, including children with CP. Local information regarding risk-factor patterns is needed to support prevention, early detection, and rehabilitation planning. Therefore, this study aimed to describe risk factors among children with CP who received therapy or care at Sambang Lihum Psychiatric Hospital.

Material And Methods

This study used a descriptive cross-sectional design to describe risk factors among children with CP at Sambang Lihum Psychiatric Hospital. The study was conducted at Sambang Lihum Psychiatric Hospital, Jalan Gubernur Syarkawi, Gambut District, Banjar Regency, South Kalimantan, from 1-31 March 2025.

The target population was patients with CP. The accessible population consisted of all children with CP who underwent therapy or care at Sambang Lihum

Psychiatric Hospital during the study period. Sampling was performed using total sampling of eligible cases during the study period.

The inclusion criteria were children with a diagnosis of CP based on medical records and parents or guardians who were willing to provide information and participate in the study. The exclusion criteria were children with other neurological conditions not classified as CP and incomplete medical-record data.

Data were collected from patient medical records and from interviews with parents or guardians using a structured questionnaire. The variables included CP status and risk-factor variables, namely maternal age during pregnancy, gestational age at birth, birth weight, history of head trauma, history of brain infection, and history of febrile seizure.

Data were analyzed descriptively and presented as frequency distributions and percentages. This study was conducted with attention to medical research ethics, including institutional permission, informed consent from parents or guardians, confidentiality of patient data, and avoidance of additional risk to participants.

Result

The study included 14 children with CP who underwent therapy or care at Sambang Lihum Psychiatric Hospital during the study period. The largest age group was 1-5 years, consisting of 8 respondents (57.2%). The distribution of patient age is shown in Table 1.

Table 1. Distribution of Age of Children With Cerebral Palsy

Age Group	N	%
1-5 years	8	57.2
6-12 years	5	35.7
13-17 years	1	7.1
Total	14	100

Risk factors described in this study included maternal age during pregnancy, gestational age, birth weight, history of

head trauma, history of febrile seizure, and history of brain infection. The distributions are presented in Tables 2-7.

Table 2. Maternal Age During Pregnancy

Category	N	%
18-35 years	10	71.4
>35 years	4	28.6
Total	14	100

Table 3. Gestational Age at Birth

Category	N	%
<=37 weeks	9	64.3
>37 weeks	5	35.7
Total	14	100

Table 4. Birth Weight

Category	N	%
<2500 g	6	42.9
>=2500 g	8	57.1
Total	14	100

Table 5. History of Head Trauma

Category	N	%
Yes	3	21.4
No	11	78.6
Total	14	100

Table 6. History of Febrile Seizure

Category	N	%
Yes	6	42.9
No	8	57.1
Total	14	100

Table 7. History of Brain Infection

Category	N	%
Yes	1	7.1
No	13	92.9
Total	14	100

Most mothers were aged 18-35 years during pregnancy (71.4%). Most children were born at <=37 weeks of gestation (64.3%). Birth weight was >=2500 g in 57.1% of children, while 42.9% had birth weight <2500 g. Most children had no history of head trauma (78.6%), no history of febrile seizure (57.1%), and no history of brain infection (92.9%).

Discussion

This descriptive cross-sectional study described the frequency of selected risk factors among children with CP at Sambang Lihum Psychiatric Hospital. The largest age group was 1-5 years. This finding is consistent with the concept that CP becomes clinically apparent during early childhood, when motor delays and functional limitations are increasingly

recognized by parents and health-care providers.

Maternal age during pregnancy was mostly within the 18-35-year range. This finding suggests that maternal age was not the dominant risk factor in this sample. However, previous literature indicates that very young or advanced maternal age may be associated with high-risk pregnancy and complications such as neonatal asphyxia, which can contribute to CP.

Prematurity was the most frequent perinatal factor identified in this study, with 64.3% of children born at ≤ 37 weeks of gestation. Prematurity is widely recognized as an important risk factor for CP because immature cerebral vasculature and vulnerable white matter increase the risk of intraventricular hemorrhage and periventricular leukomalacia, particularly in preterm infants.

Although most children had birth weight ≥ 2500 g, the proportion of low birth weight was still substantial (42.9%). Low birth weight is associated with neonatal complications, including asphyxia and impaired neurological development. Therefore, prematurity and low birth weight should remain important targets for antenatal and neonatal risk reduction.

Head trauma and brain infection were not dominant in this sample, and most children had no history of either factor. Nevertheless, both are known postnatal causes of brain injury and may contribute to CP in certain cases. Febrile seizure was reported in 42.9% of children. This finding should be interpreted cautiously because febrile seizure may represent an associated neurological history rather than a direct cause of CP.

Overall, the findings suggest that prematurity and low birth weight were the most prominent risk factors among children with CP in this study population. These results may help guide early monitoring of high-risk pregnancies, neonatal care for preterm or low-birth-weight infants, and early referral for developmental assessment and rehabilitation. The small sample size and descriptive design limit causal interpretation; therefore, studies with

larger samples and analytic designs are needed.

Conclusion

In this study, most children with CP were aged 1-5 years. The most prominent risk factors were gestational age ≤ 37 weeks and birth weight < 2500 g. Most children did not have a history of head trauma, febrile seizure, or brain infection. These findings support the importance of routine antenatal care, monitoring of high-risk pregnancies, neonatal care for premature and low-birth-weight infants, and early rehabilitation services for children at risk of CP.

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