

THE IMPACT OF TEENAGE PREGNANCY ON THE HEALTH OF MOTHERS AND BABY

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ABSTRACT

Teenage pregnancy remains a major public health concern because it is associated with increased maternal and neonatal morbidity resulting from biological, nutritional, and psychosocial immaturity. Despite global efforts to reduce its incidence, teenage pregnancy continues to contribute to adverse pregnancy outcomes, particularly in low- and middle-income countries. This study aimed to describe the maternal and infant health outcomes associated with teenage pregnancy in the Sikumana Community Health Center working area, Kupang City, Indonesia. A retrospective descriptive survey was conducted using secondary data from maternal and delivery medical records of all teenage mothers who received antenatal care and delivered at the Sikumana Community Health Center between 2024 and 2025. A total of 67 respondents were included through total sampling, and data were analyzed descriptively using frequency distributions. Among adolescent mothers, anemia was identified in 8.95% of cases (5.97% mild, 1.49% moderate, and 1.49% severe), premature rupture of membranes in 1.49%, chronic energy deficiency in 26.87%, and cesarean section delivery in 7.46%. Regarding neonatal outcomes, 7.46% of infants were born with low birth weight and 8.96% experienced neonatal asphyxia. Most respondents were aged 16–19 years (97.01%), had completed senior high school (79.10%), were unmarried (100%), and were primigravida (100%). Teenage pregnancy is associated with adverse maternal and neonatal health outcomes, particularly chronic energy deficiency, anemia, low birth weight, and neonatal asphyxia. Strengthening adolescent reproductive health education, improving access to quality antenatal care, and implementing early identification of high-risk pregnancies are essential to reduce pregnancy-related complications and improve maternal and child health outcomes.

Keywords: Health impact, infant, mother, pregnancy outcomes, teenage pregnancy.

INTRODUCTION

Teenage pregnancy refers to pregnancies that occur in adolescent girls aged 10–19 years or less than 20 years. The World Health Organization (WHO) states that the phenomenon of teenage pregnancy is a significant global challenge in both developed and developing countries (World Health Organization, 2024). Although the global teenage birth rate is declining, regional differences remain regarding the rate of this change. The global downward trend shows 64.5 per 1,000 women in 2000 to 42.5 per 1,000 women in 2021 (Gross et al., 2022). Although the global trend has declined, the incidence of teenage pregnancy remains unacceptably high, indicating the need for comprehensive prevention strategies (Amu, 2021). These strategies should include comprehensive sexuality education, improved access to adolescent-friendly reproductive health services, community and parental engagement, school-based reproductive health promotion, and

efforts to prevent child marriage through multisectoral collaboration. Strengthening these preventive measures is essential to reduce unintended teenage pregnancies and improve maternal and neonatal health outcomes (Danso-Appiah et al., 2025). Data from the Central Statistics Agency shows that the teenage pregnancy rate in 2023 was 18.07% and in 2024 increased to 18.38% of cases. Nationally, there are 25.8% of girls who marry and become pregnant for the first time under 19 years old and 0.9% of women who marry and become pregnant for the first time under 14 years old. Data from the Ministry of Health in East Nusa Tenggara shows that 19.3% of women married and became pregnant for the first time under 19 years old and 0.3% of women married and became pregnant for the first time under 14 years old (Kementerian Kesehatan, 2024).

Efforts to reduce teenage pregnancy are one of the goals of the 2030 SDGs, which target a reduction in the maternal mortality rate (MMR) to 70 per 100,000 live births, due to teenage pregnancy being one of the causes (Varmaghani et al., 2024). Pregnancy under the age of 20 is a significant health and social issue, as it is associated with increased morbidity and mortality among mothers and children. This is due to the immaturity of the adolescent reproductive system, which can increase maternal and fetal mortality rates by 4 to 6 times compared to women who become pregnant and give birth between the ages of 20 and 30 (Nurdiawan et al., 2021).

Adolescence is a period of rapid growth and development, both physically, psychologically, and intellectually (Santrock, 2023). It is characterized by a high level of curiosity and a tendency to take risks without prior consideration. Adolescence is a phase in which individuals have passed through the weak and dependent periods of childhood, but have not yet reached a stage of full responsibility, both for themselves and for society (Heidari & Dastgiri, 2020). Adolescents are highly curious and enthusiastic about new things, including personal matters such as sexuality. Adolescents who are searching for their identity tend to engage in more promiscuous sexual relationships because they have easy access to global information related to sexuality (Sawyer et al., 2023).

Puberty in girls is marked by menarche. One common adolescent problem is teenage pregnancy. Teenage pregnancy occurs during adolescence when the mother is under 20 years old. Pregnancy at this age is classified as high-risk because it involves an immature body and carries a significant risk of medical and social complications associated with adverse outcomes for both mother and baby (Hastuty, 2018).

Teenage pregnancy is globally considered a negative phenomenon because it has major individual, social, economic, and health consequences, not only impacting teenage mothers and babies, but also impacting society by encouraging the continuation of the cycle of poverty between generations. The health impacts caused by unwanted pregnancies (KTD), namely various complications such as obstructed labor, eclampsia, unsafe abortion can result in lifelong disability, infertility, or death. Younger women are at high risk of maternal death because their bodies are not yet mature enough to bear children and pregnancy complications, such as anxiety and postpartum depression. Teenage pregnancy can cause several complications such as anemia and Chronic Energy Deficiency (CED) in pregnant women (Chakole et al., 2022).

Teenage pregnancy often leads to inadequate prenatal care, increasing the health risks of both mother and baby. Research shows that teenage pregnancy and childbirth are associated with increased health risks for both the teen and the newborn. Teenage pregnant women often experience iron-deficiency anemia, caused by an unbalanced diet and increased nutritional needs during pregnancy. Teenage mothers are statistically at a higher risk of anemia compared to adult primigravida. Preterm birth, premature rupture of membranes, gestational hypertension, preeclampsia, an APGAR score below 7 at 5 minutes, anemia, fetal growth restriction, and stillbirth are common among teenage mothers (Gardner et al., 2023).

Rapid recurrence of pregnancy occurs in 18% of adolescent pregnancies and has a negative impact on the health, economic well-being, and development of adolescent mothers and their children. Adolescent girls who experience unwanted pregnancies will seek solutions. The most common solutions are marriage or abortion. In developed countries, abortion is still permitted if justified. In developed countries, abortion is considered a solution for unwanted pregnancies in adolescents because it is related to maternal health risks, as a pregnant adolescent mother's age does not necessarily mean her body is ready to accept a fetus.

Teenage pregnancy is a serious issue that can impact a teenager's life. Besides affecting the mother, teenage pregnancy can also affect the baby born to the teenage mother. Teenage pregnancy poses a serious threat to the quality of life of the teenager and her future offspring. Pregnant teenage mothers are more likely to experience eclampsia, systemic infections, and puerperal endometriosis. Impacts on the baby include premature birth, low birth weight (LBW), and neonatal death. Other impacts include fetal growth retardation, which poses additional risks to the offspring. Teenage pregnancy also leads to early school dropout, low academic achievement, and limited employment options for adolescents (Lesinskienė et al., 2025).

Furthermore, teenage pregnancy remains a significant public health concern in the Sikumana Community Health Center working area, Kupang City. Preliminary health records indicated 10 cases of teenage pregnancy in 2025, which increased markedly to 41 cases between January and April 2026 alone. This rising trend highlights the urgent need for evidence-based interventions, as teenage pregnancy contributes to adverse maternal outcomes, including anemia, chronic energy deficiency, hypertensive disorders, and obstetric complications, as well as neonatal outcomes such as low birth weight, prematurity, and birth asphyxia. These conditions may increase maternal and neonatal morbidity and place an additional burden on local maternal and child health services.

A preliminary review of maternal health records at the Sikumana Community Health Center identified 10 cases of teenage pregnancy in 2025, with the number increasing to 41 cases between January and April 2026. This marked increase highlights the continuing burden of teenage pregnancy in the study area and underscores the need for a better understanding of its impact on maternal and infant health to support evidence-based prevention and intervention strategies.

Although numerous studies have examined the adverse outcomes of teenage

pregnancy, most have been conducted in hospital settings or secondary referral facilities and have primarily focused on specific maternal or neonatal complications rather than providing a comprehensive assessment of both outcomes. Recent evidence also indicates that studies using routinely collected data from primary health care facilities remain scarce, particularly in low- and middle-income countries, limiting the availability of context-specific evidence to support primary maternal and child health services (Danso-Appiah et al., 2025; Lesinskienė et al., 2025; Gardner et al., 2023). Accordingly, this study provides novel evidence from the Sikumana Community Health Center by comprehensively describing both maternal and infant health outcomes associated with teenage pregnancy using routinely collected primary health care data. The findings are expected to support evidence-based planning and strengthen maternal and child health programs at the primary health care level.

This study aimed to describe the maternal and infant health outcomes associated with teenage pregnancy in the Sikumana Community Health Center working area, Kupang City, Indonesia.

RESEARCH METHOD

This study employed a retrospective descriptive survey design to describe the maternal and neonatal health impacts associated with teenage pregnancy using existing medical records. A retrospective approach was considered appropriate because the study utilized routinely collected secondary data from delivery records, enabling the identification and description of maternal and infant health outcomes without influencing clinical management or participant behavior. This design also allowed an efficient assessment of pregnancy outcomes that had already occurred within the study period. The study was conducted from April to June 2025. The study population consisted of all teenage mothers who received antenatal care and delivered at the Sikumana Community Health Center between 2024 and 2025, totaling 67 respondents. A total sampling technique was applied. The study utilized secondary data obtained from maternal and delivery medical records at the Sikumana Community Health Center. Data were extracted using a structured data extraction form developed by the researchers to systematically record all study variables. Prior to analysis, each medical record was reviewed to verify the completeness and consistency of the recorded information. All 67 medical records contained complete data for the study variables; therefore, all records met the eligibility criteria and were included in the final analysis. The data were processed and analyzed using descriptive analysis to determine the frequency distribution of each variable.

RESULTS AND DISCUSSION

Table 1 presents the general characteristics of the respondents based on age, education level, marital status, and gravida. These data provide an overview of the respondents involved in this study.

Table 1. Respondent Characteristics Based on Age, Education Level, Marital Status and Gravida

Characteristic	F	%
Age		
10-12 years	0	0
13-15 years	2	2.99
16-19 years	65	97.01
Total	67	100
Education		
Elementary School (SD)	0	
Junior High School (SMP)	14	20.90
Senior High School (SMA)	53	79.10
Total	67	100
Marital status		
Legitimate	0	0
Invalid	67	100
Total	67	100
Gravida		
Primigravida	67	100
Multigravida	0	0
Total	67	100

Table 1 data shows that the most common age characteristics are in late adolescence at the age of 16-19 years, amounting to 65 (97.01%). The most common level of education of respondents is high school education, amounting to 53 (79.10%). The marital status of all respondents is officially unmarried, amounting to 67 (100%). All respondents were pregnant and giving birth for the first time, amounting to 67 (100%).

Table 2. Frequency Distribution of the Impact of Teenage Pregnancy on Maternal and Infant Health in the Sikumana Health Center Working Area

Impact	F	%
Anemia		
Mild anemia	4	5.97
Moderate anemia	1	1.49
Severe anemia	1	1.49
No anemia	61	91.04
Total	67	100
Amniotic Fluid Condition		
PROM	1	1.49
No PROM	66	98.51
Total	67	100
Nutritional status		
Chronic energy deficiency	18	26.87
Not chronic energy deficiency	49	73.13
Total	67	100
Childbirth		
SC	5	7.46
Normal	62	92.54
Total	67	100
Baby Weight		

Low birth weight	5	7.46
Not LBW	62	92.54
Total	67	100
Respiratory complications in babies		
Asphyxia	6	8.96
No Asphyxia	61	91.04
Total	67	100

Based on Table 2, the majority of pregnant adolescents did not experience anemia (91.04%). Among those diagnosed with anemia, mild anemia was the most prevalent condition, affecting 4 respondents (5.97%), while moderate and severe anemia were each identified in 1 respondent (1.49%). According to the World Health Organization (WHO) classification, anemia severity was categorized based on hemoglobin levels, with mild anemia defined as Hb 10.0-10.9 g/dL, moderate anemia as Hb 7.0-9.9 g/dL, and severe anemia as Hb <7.0 g/dL. One adolescent pregnant woman experienced PROM (1.49%). The nutritional status of adolescent pregnant women experiencing chronic energy deficiency was 18 (26.87%). The type of delivery in adolescent pregnancies was cesarean section (C-section) in 5 (7.46%). The impact of adolescent pregnancy on newborns included low birth weight (LBW) in 5 infants (7.46%) and neonatal asphyxia in 6 infants (8.96%). These findings indicate that teenage pregnancy may contribute to adverse neonatal outcomes that require early clinical management, as both LBW and neonatal asphyxia are associated with an increased risk of neonatal morbidity, delayed growth and development, and neonatal mortality.

The Incidence of Anemia in Teenage Pregnancy

Based on table 2, it is known that the majority of pregnant adolescents did not experience anemia (91.04%). Among those diagnosed with anemia, mild anemia was the most prevalent condition, affecting 4 respondents (5.97%), while moderate and severe anemia were each identified in 1 respondent (1.49%). Anemia is a condition where the number of red blood cells or oxygen carrying capacity is insufficient to meet physiological needs and is conventionally considered as a hemoglobin (Hb) value of less than two standard deviations (SD) below the median value for health based on age, sex, height, smoking, and pregnancy status. The CDC defines anemia in pregnancy as a condition in which the mother has an Hb level below 11 g / dL in the first and third trimesters, 10.5 g / dL in the second trimester. Meanwhile, according to WHO, anemia in pregnancy is an Hb value <11 g / dL (Ratna & Manikam, 2021; Ummah et al., 2024).

Anemia can be caused by various factors, such as infrequent prenatal checkups, failure to take iron (Fe) tablets regularly, and infrequent consumption of foods containing the nutrients needed during pregnancy, which can all contribute to the development of anemia. If a pregnant woman is not anemic, her body is ready to welcome a child (Damayanti et al., 2025). Not only the condition of the uterus and reproductive organs, but also the mother's psychological state will indicate her readiness to welcome her baby. This occurs due to a healthy pregnancy (Piskin et al., 2022). Teenage pregnancy has a

higher prevalence of eclampsia (OR: 4.03), premature birth (OR: 1.5), anemia during pregnancy (OR: 2.42), postpartum hemorrhage (OR: 2.59), and low birth weight (OR: 2.28) (Nurdiawan et al., 2021). In another study, the results showed that there was a significant relationship between teenage pregnancy and anemia (p value: 0.013; OR: 7.364) (Chakole et al., 2022).

Incidence of PROM in Adolescent Pregnancy

Based on table 2 shows the incidence of KPD in early pregnancy in the working area of Sikumana health center who did not experience KPD as many as 66 (98.51) respondents and 1 (1.49) respondent experienced KPD during the labor process. The results of research exploring the impact of teenage pregnancy on poor maternal outcomes found that pregnancy in teenage women causes more maternal complications, such as premature birth, preeclampsia, threatened abortion, anemia in pregnancy, maternal death, postpartum hemorrhage, hypertension in pregnancy, the incidence of premature rupture of membranes caused by physical, social, economic, and behavioral factors contributing to poor maternal outcomes during teenage pregnancy.

Research findings indicate that age is a significant factor influencing the development of a woman's reproductive organs (Chakole et al., 2022). Pregnant women under 20 years of age can experience problems due to their physical readiness. At this age, the reproductive organs are not yet fully formed, and the ligaments supporting the uterus are not yet functional and are not yet strong enough, making them susceptible to premature rupture of membranes (Heidari & Dastgiri, 2020). Other research findings indicate that abdominal deliveries are more common in early adolescence, and the abdominal deliveries observed in this study are influenced by relative indications, namely premature rupture of membranes (PROM) and a history of previous cesarean sections. In early adolescence, pregnancy is highly risky and associated with maternal mortality and morbidity (Andriastuti et al., 2020; Gross et al., 2022).

Incidence of Chronic Energy Deficiency in Teenage Pregnancy

Table 2 shows that 49 (73.13%) of adolescent pregnancies did not have chronic energy deficiency, while 18 (26.87%) respondents experienced chronic energy deficiency. The most common nutritional disorder in pregnant women is chronic energy deficiency. Chronic energy deficiency is a condition in which adolescent girls/women experience long-term or chronic nutritional deficiencies (calories and protein). Chronic energy deficiency is also known as malnutrition.

According to Marani, nutritional deficiencies and low health status of pregnant women are still very vulnerable, this is indicated by the still high MMR caused by bleeding due to nutritional anemia and Chronic Energy Deficiency during pregnancy (Ummah & Utami, 2024). Pregnant women who suffer from chronic energy deficiency and anemia have a greater risk of illness, especially chronic energy deficiency and anemia can occur simultaneously during pregnancy. The main cause of chronic energy deficiency and anemia is poor maternal nutritional intake during pregnancy, which not only affects

the birth of the child but is also a risk factor for maternal death (Nurdin et al., 2018; Ratnawati Purwitaningtyas & Intan Azkia Paramitha, 2024).

Other factors contributing to the development of chronic energy deficiency and anemia include age, education, economic status, occupation, diet, the role of health workers, parity, and pregnancy spacing. Pregnant women under 20 are biologically less emotionally stable, making them susceptible to emotional changes that impact nutritional adequacy (Zhou et al., 2024).

The research conducted through literature studies from various international and national journals and then comparing the articles, concluded that there is an influence of teenage pregnancy on the incidence of chronic energy deficiency in pregnant women and teenage pregnancy can cause many complications including chronic energy deficiency (Nurdin et al., 2018). The results of the research conducted showed that data analysis using the chi square test obtained a p value = 0.00 which means it is smaller than $\alpha = 0.05$ thus H_0 is accepted. In this case it is said that there is a relationship between teenage age and the incidence of chronic energy deficiency in pregnant women at the Flamboyan Posyandu.

The present study extends the existing evidence by providing a comprehensive description of maternal and infant health outcomes associated with teenage pregnancy using routinely collected data from a primary health care facility in Indonesia. Unlike previous studies that primarily examined a single maternal complication or were conducted in hospital settings, this study simultaneously describes multiple maternal outcomes, including anemia, premature rupture of membranes, chronic energy deficiency, and mode of delivery, as well as infant outcomes such as low birth weight and neonatal asphyxia. These findings provide context-specific evidence that may support early identification of high-risk adolescent pregnancies and inform maternal and child health programs at the primary health care level.

Types of Delivery by CS in Teenage Pregnancy

Table 2 shows the impact of teenage pregnancy on the type of delivery. Sixty-two (92.54%) delivered vaginally, while five (7.46%) delivered by cesarean section. Further analysis of maternal age revealed that those under 20 and over 35 had a higher frequency of cesarean deliveries than those of productive age (20-34). Biologically, ages outside this safe range are often associated with complications such as a narrow pelvis or weakened uterine contractions.

Mothers who become pregnant too young are not physically prepared for pregnancy, childbirth, and postpartum, as well as caring for their babies (Nivas & Sahay, 2025). In mothers who are too young, the uterus and pelvis are not yet fully developed. This can lead to difficult deliveries. This research indicates that younger mothers are at higher risk of cesarean sections (CS) because they are more susceptible to complications during labor (Heidari & Dastgiri, 2020).

Being too young, or under 17 years of age, can affect the method of delivery due to reproductive organs not yet optimally developed for pregnancy and an immature

psychological state that makes it susceptible to shock. Causes of asphyxia in abnormal labor (procedures) are due to the use of instruments and the use of anesthetics during surgery. In addition, operative vaginal delivery, cesarean section, and low birth rates are significantly higher in teenage mothers than in older mothers.

The results of the study showed that data analysis using the Fisher Exact Test yielded a p-value <0.05 , namely 0.015. Thus, there is a significant relationship between age and mode of delivery in early pregnancy.

Low Birth Weight Incidence in Teenage Pregnancy

The results in table 2 show that 62 (92.54%) babies were born with normal birth weight, and 5 (7.46%) were born with low birth weight. Birth weight is a factor that is significantly and very dominantly related to the occurrence of asphyxia in newborns. Teenage pregnancy is considered a high-risk condition that causes psychological problems and maternal and perinatal complications. 15 According to WHO, complications during pregnancy and childbirth in the 15-19 age group are the main cause of death worldwide (Morrison et al., 2023). Teenage mothers have a higher risk of eclampsia, puerperal endometritis, and systemic infections than women aged 20 to 24 years, and babies of teenage mothers have a risk of low birth weight, premature delivery, and other dangerous neonatal conditions (Beluska-Turkan et al., 2019).

Pregnancy at a young age or in adolescence carries risks such as premature birth, low birth weight (LBW), and postpartum hemorrhage, which can increase maternal and infant mortality. Adolescent pregnancy is also associated with unwanted pregnancies and unsafe abortions (Chakole et al., 2022). Teenage pregnancies are prone to several pregnancy problems, including excessive weight gain, prolonged labor, toxemia of gravidarum, cesarean section, cervical laceration, premature birth, and babies weighing less than 2500 grams (LBW).

Chronic energy deficiency syndrome in preconception women can lead to health problems. Factors influencing the occurrence of chronic energy deficiency include inadequate economic status, education, employment, and income, which can lead to inability to meet daily nutritional needs. Chronic energy deficiency that is not addressed early will negatively impact pregnancy. Chronic energy deficiency increases the risk of miscarriage, abortion, birth defects, premature birth, and low birth weight babies (Lesinskienė et al., 2025).

The condition of a baby with low birth weight causes the baby to lose consciousness after birth because the organs that experience growth in the womb are not yet perfect so they experience a slow response, while asphyxia that is not associated with low-birth weight babies is caused by the birth process and congenital abnormalities. Babies with low-birth weight experience asphyxia because the respiratory control center and digestive organs are not yet perfect. The ability to metabolize heat is still low, resulting in asphyxia, acidosis and making it easier for infections to occur. Babies with low birth weight also have difficulty adapting to the new environment, which disrupts growth and development and is prone to infections in the respiratory system.

Asphyxia Incidence in Teenage Pregnancy

Table 2 above shows that the birth of babies who did not experience asphyxia in mothers with teenage age was 61 (91.04%) and those who experienced asphyxia were 6 (8.96%). The causes of asphyxia in newborns include maternal factors, namely maternal hypoxia, maternal age less than 20 years or more than 35 years, parity of the number of children born, and diseases suffered by the mother such as hypertension and hypotension. Age at the time of pregnancy greatly influences the mother's readiness to accept responsibility as a mother so that the quality of human resources needs to be improved. Low birth weight (LBW) babies are an important problem in their management because they have a tendency towards an increase in the occurrence of asphyxia in babies.

Teenage mothers have a higher rate of neonatal morbidity in deliveries with gestational ages equal to or greater than 37 weeks and an Apgar score of 8 and 9 at 5 minutes. Furthermore, the rate of respiratory failure and sepsis in newborns is higher compared to mothers aged 19 years and older.

The outcomes of teenage pregnancy on fetus and neonatal: 1.7% fetal death; 4.4% stillbirth; 18.3% 5-minute APGAR score. The results of this study are in line with research conducted that the results of the Spearman rank test showed a relationship between maternal age (p value 0.021) and the incidence of asphyxia (Gardner et al., 2023; Nurdiawan et al., 2021). The results showed that premature birth, premature rupture of membranes, gestational hypertension, preeclampsia, APGAR score below 7 at the 5th minute, fetal growth retardation, and stillbirth are common in teenage mothers (Nurdiawan et al., 2021).

These findings contribute not only to local maternal and child health planning but also to the global evidence on adolescent pregnancy by providing comprehensive data from a primary health care setting in a low- and middle-income country. The results may assist policymakers and health professionals in strengthening adolescent reproductive health programs, improving early pregnancy risk identification, enhancing nutritional interventions, and optimizing antenatal care services. Similar recommendations have been emphasized in recent international studies, which highlight that strengthening primary health care systems is essential for reducing maternal and neonatal complications associated with adolescent pregnancy (Danso-Appiah et al., 2025; Varmaghani et al., 2024; Lesinskienė et al., 2025).

CONCLUSION

Teenage pregnancy is associated with several adverse maternal and neonatal health outcomes, reflecting the biological and nutritional vulnerability of adolescent mothers. In this study, maternal complications included anemia (8.95%), premature rupture of membranes (1.49%), chronic energy deficiency (26.87%), and cesarean section delivery (7.46%), while neonatal complications included low birth weight (7.46%) and neonatal asphyxia (8.96%). These findings support previous evidence that adolescent pregnancy increases the risk of unfavorable pregnancy outcomes and highlights the importance of

strengthening adolescent reproductive health education, improving access to quality antenatal care, nutritional support, and early identification of high-risk pregnancies at the primary health care level to improve maternal and neonatal health outcomes.

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