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Pregnant Woman's Knowledge to the Danger Signs of Pregnancy

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Abstract---*Background: Based on World Health Organization (WHO,2019) Maternal Mortality Rate is the number of maternal deaths caused by pregnancy, childbirth and postpartum that become the indicator of women's health level. Maternal mortality rate becomes one of the targets of Sustainable Development Goals (SDGs) in reducing maternal mortality rate to be 70 per 100.000 live birth in 2030. Aim: to review the evidence relate to the pregnant woman's knowledge to the danger signs of pregnancy. Method: this scoping review used framework from Arksey and O'Malley consisting of conducting focus review by framework PEOS, conducting literature searching by using 3 databased by identifying scoping review question, identifying relevant article, selecting article, data charting, arranging as well as summarizing and reporting the result. Result: The scoping review of 10 article journal having Grade A and B that discuss about danger signs of pregnancy, category of knowledge, utilizing health facilities, the method to improve the knowledge. Conclusion: Based on scoping review result of primigravida's knowledge is still low compared to multigravida, therefore it needs the alternative to improve pregnant women's knowledge about danger signs of pregnancy through counselling and telemedicine. Telemedicine is the latest facility to improve knowledge information of pregnant women about the danger signs of pregnancy. Suggestion: Based on the scoping review conducted, the researcher recommend increasing pregnant women's knowledge relate to the danger signs of pregnancy by using health promotion media with latest technology that is easy to understand and interesting.*
Keywords---*dangerous signs pregnancy, knowledge, maternal mortality rate, pregnancy, pregnant woman's.*

Introduction

Based on the World Health Organization (WHO, 2019) The maternal mortality rate is the number of maternal deaths caused by pregnancy, childbirth and postpartum which are indicators of women's health level. The maternal mortality rate (MMR) is one of the targets of the Sustainable Development Goals (SDGs) in reducing the maternal mortality rate (MMR) to 70 per 100,000 live births by 2030. Based on (SUPAS, 2015) it also revealed that the maternal mortality rate reached 305/ 100,000 live births. According to [Indonesian Health profile \(2021\)](#), the maternal mortality rate (MMR) shows 4,627 deaths in Indonesia. This MMR is an increase compared to 4,221 deaths in 2019. This is due to bleeding as many as 1,330 cases, hypertension in pregnancy 1,110 cases of bleeding system disorders 230 cases ([Okour et al., 2012](#); [Koşum & Yurdakul, 2013](#)).

The high MMR is influenced by the knowledge of pregnant women about the danger signs of pregnancy ([Retnaningtyas et al., 2022](#)). Knowledge of the danger sign of obstetric complications is the first important step in receiving appropriate and timely referrals to maternal and infant care units. The lack of awareness of the danger signs of pregnancy in pregnant women is a major factor causing delays in seeking obstetric care therefore maternal

morbidity and mortality rates are still high worldwide (Bintabara et al., 2017). Regarding the high MMR, it needs efforts to suppress MMR by utilizing antenatal care visits contained in the policy of the Minister of Health in the Decree of the Minister of Health of the Republic of Indonesia Number Hk.01.07 / Menkes / 320 / 2020 Concerning Midwife Professional Standards, there are several articles governing midwives. Based on Article 46 of Law Number 4 of 2019 concerning Midwifery, in organizing midwifery practice, midwives should provide holistic services (Ministry of Health, 2020). The MCH (Mother Children Health) book is a medium or tool to early detect complications in maternal and infant health, especially during pregnancy, the MCH book can also be used as a counselling tool to increase knowledge information to mothers, families, and the community to be able to live a healthy life (Ministry of Health RI, 2019).

Another effort made by Ministry of Health (2019), with the existence of a class of pregnant women to increase mothers' knowledge about the danger signs of pregnancy where the pregnant women class is a medium to learn about health for pregnant women in the form of face-to-face in groups aimed at increasing the knowledge, attitudes and skills of mothers and families regarding pregnancy, childbirth, postpartum care of diseases or complications during maternity pregnancy, postpartum and new-born care. The class of pregnant women is expected to increase knowledge and changes in the behaviour of pregnant women and their families. This increased knowledge and behaviour change is expected to increase awareness of the importance of health care during pregnancy and recognition of signs of complications (Ministry of Health, 2010).

Research Method

This scoping review used the Framework from Arksey and O'Malley, i.e., conducting a focusing review with the PEOS framework, conducting literature searching by using 3 data based, such as PubMed, ProQuest and EBSCO then identifying scoping review questions, identifying relevant articles article selection, data charting, compiling, summarizing, and reporting results (Aswitami et al., 2022; Sharma et al., 2022). The PEOs Framework consists of population, exposure, outcomes, and design. The population on scoping, such as pregnant women, exposure, implementation of the effectiveness of the class of pregnant women, Outcomes of this scoping Knowledge of the danger signs of pregnancy and Design on this scoping is quantitative (Berti et al., 2011; Yudin et al., 2009).

Inclusion and Exclusion Criteria

Inclusion Criteria

- a. Published in English
- b. Published since 2017- 2021
- c. Article discussing about the danger signs of pregnant women
- d. Article discussing the factor influencing mother's knowledge about the danger signs of pregnancy
- e. Article discussing about mother's knowledge about danger sign of pregnancy
- f. Article discussing about antenatal care (ANC) visits.

Exclusion Criteria

- a. Opinion papers
- b. Article discussing about family's support in pregnant women class
- c. Article discussing about the danger sign during postpartum
- d. Article discussing about the quality of antenatal care service.
- e. Book
- f. Report of WHO
- g. Systematic Review
- h. Literature review
- i. BlogSpot

Table 1
Keywords

Element	Keyword
Population	Pregnant woman Pregnancy

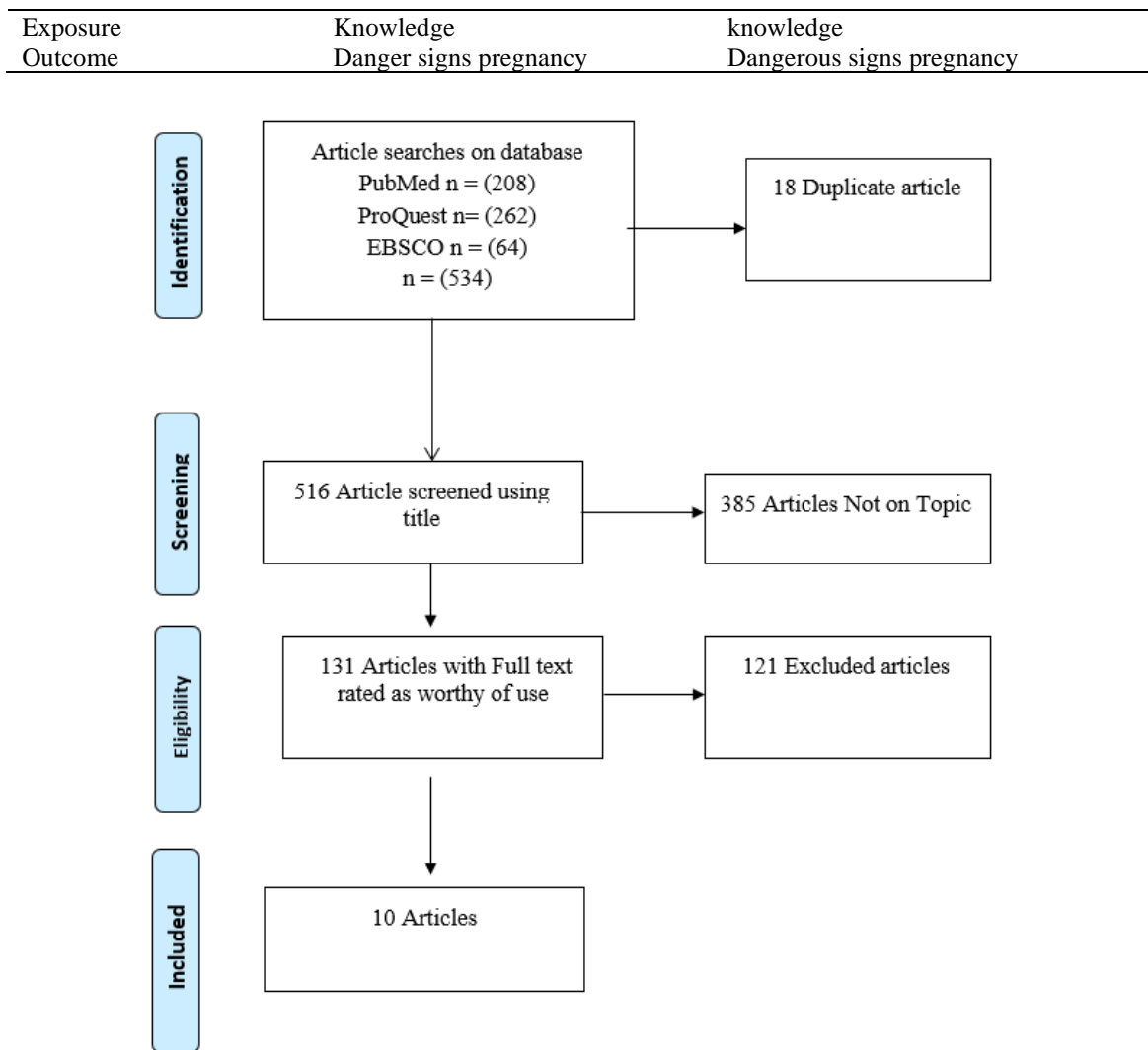


Figure 1. Diagram Prism Flowchart

Table 2
Data Charting

No	Title	Author, year and place	Design	Aim	Result
	Knowledge of obstetric danger signs among Saudi Arabian women	Abu-Shaheen et al., 2020 /Arab Saudi	Quantitative	To know the knowledge of Saudi Arabian women about the danger signs of obstetrics and their determinant factor	The result of this study explained that during pregnancy, 21.1 percent of participants reported that they knew about danger signs such as swollen hands and face. In addition, they knew that danger signs During childbirth, 23.1 percent of participants reported that they knew about prolonged labor (> 12 hours). At postpartum, 26.3 percent of participants reported that they knew about foul-smelling discharge. Women who frequent antenatal care visits in health facilities tend to know the danger signs of pregnancy at least one of the

No	Title	Author, year and place	Design	Aim	Result
					danger signs of pregnancy
	Cross-sectional survey of knowledge of obstetric danger signs among women in rural Madagascar	Danish of Ahmad/2021/INDIA	Quantitative	The purpose of this study is to identify the effect of the program on mother's knowledge about the danger signs adapted to a comprehensive set of confounding at the individual, household, and community levels.	The result showed that the knowledge of pregnant women varied from 80.9 percent of women who knew the danger signs in pregnancy, to 51.9 percent, 50.8 percent and 53.2 percent during pregnancy, childbirth, postpartum and in new-born. Participation in mHealth interventions, higher household incomes and receipt of information about danger signs during pregnancy are associated with knowledge of danger signs during childbirth. It is also influenced by the attainment of higher education and the receipt of information about danger signs in antenatal care is associated with a significantly higher probability of knowing the danger signs for new-borns, so that the provision of information during pregnancy and with mHealth
	Counseling and Knowledge of Danger Signs of Pregnancy Complications in Haiti, Malawi, and Senegal	Assaf, 2018 / Haiti, Malawi, and Senegal	Quantitative	The purpose of this study is to know that providing counselling about the danger sign of pregnancy complications as part of antenatal care (ANC) visits can be increase awareness of pregnant women so that if there are danger signs, they can immediately find help	The result shows that there is a lack of agreement between the client and the counselling officer even though counselling had been carried out after antenatal care visits. The agreement rate in 3 countries varies with the results of 17 percent in Haiti, 33 percent in Malawi and 23 percent in Senegal, knowledge about the danger signs for overall is still low in the three countries, where the average number of danger sign is only 1.5 or less than 1.5 so the need for client-centered counselling and focusing on client needs can improve the quality of client knowledge about danger signs
	Knowledge of obstetric danger signs and associated factors among reproductive age women in Raya Kobo district of Ethiopia: A community based cross-sectional study	Bililign & Mulatu, 2017 / Afrika	Quantitative	The purpose of the study is to find out the predictors knowledge of the danger signs of obstetrics during pregnancy, childbirth, and postpartum in mothers of childbearing age	The result shows that About (46.7 percent), 27.8 percent, and 26.4 percent of mothers have knowledge of the danger signs during pregnancy, childbirth and postpartum. Vaginal bleeding is the danger signs which is the most cited for three periods. The level of secondary and upper education of the mother increases the chances of knowledge about the danger signs during pregnancy and postpartum. In addition, childbirth in health facilities and the number of ANC visits are

No	Title	Author, year and place	Design	Aim	Result
				who give birth in the last 12 months.	significant factors to increase the knowledge of pregnant, maternity and postpartum mothers.
	Knowledge of danger signs during pregnancy and subsequent healthcare seeking actions among women in Urban Tanzania: a cross-sectional study	Mwilike <i>et al.</i> , 2018 /Afrika bagian timur	Quantitative	The purpose of the study is to find out the mother's knowledge about the danger signs of obstetrics during pregnancy and the next health care search action.	The result shows that among the 384 participants, 67 (17.4 percent) had experienced danger signs during their pregnancy and reported the act of finding their health care after recognizing the danger signs. Among those who recognized the danger signs, 61 (91 percent) visited health facilities. Among the 384 participants, five (1.3 percent) had no education, 175 (45.6 percent) had primary education, 172 (44.8 percent) had secondary education, and 32 (8.3 percent) had post-secondary education as their highest level of education. When asked to spontaneously mention the danger signs, more than half of the participants (n=222.57.8 percent) were only able to mention one to three danger signs. Only 104 (31 percent) had the correct knowledge of at least four danger signs and (2.7 percent) could not mention any item. The most known signs of pregnancy are prevaginal bleeding (81 percent) swelling of the fingers, face, and feet (46 percent) and severe headaches (44 percent). Older women are 1.6 times more likely to have knowledge of the danger signs than young women
	Knowledge of obstetric danger signs and associated factors among pregnant women in Wolaita Sodo town, South Ethiopia: A community-based cross-sectional study	Bolanko <i>et al.</i> , 2021 /Afrika Selatan	Quantitative	The purpose of this study is to determine the level of mother knowledge and the factors that influence mother knowledge	The result shows that knowledge about the danger signs of obstetrics in pregnant women is still low which is influenced by the mother's age, monthly average income, occupation motherhood, parity and gravidity are factors that are meaningfully related to knowledge of the danger signs of obstetrics
	Assessment of	Chowdhury &	Quantitative	The purpose of	The result shows that, 170 pregnant

No	Title	Author, year and place	Design	Aim	Result
	knowledge of obstetric danger signs among pregnant women attending a teaching hospital	Chakraborty, 2017 /India		this study is to find out knowledge about the danger signs of obstetrics in pregnant women treated in hospital, analysing factors related to awareness of danger signs in pregnancy in participants of the research	women met the inclusion criteria. The average age of the participants are 26.40 ± 4.14 years. Nearly 67.10 percent of participants were aware of vaginal bleeding as a danger sign, 50.0 percent said excessive vomiting was a danger sign, 23.50 percent knew that blurred vision was a danger sign, while only 20.0 percent reported that seizures were a danger sign. Overall, adequate knowledge (total knowledge score 5 and above) was observed in 54.70 percent of participants
	Knowledge of pregnancy danger signs and associated factors among pastoral women in Afar Regional State, Ethiopia	Liben et al., 2019 /Afrika	Quantitative	The objective of research is to assess knowledge about the danger sign of pregnancy and factors related among women who gave birth in the two years prior to the survey among the community herders in Afar State, North-eastern Ethiopia	The result shows that almost 1 in every 13 women had knowledge of the danger signs of pregnancy. Therefore, the strengthening of pastoralist-based maternal health information systems becomes important to increase the mother's knowledge of the danger signs of pregnancy in the State Afar Section
	Women's knowledge of danger signs of obstetric complications and birth preparedness in low income communities in India	Jungari, 2020 /INDIA	Quantitative	The purpose of this study is to examine knowledge about the danger signs of obstetric complications in pregnant, maternity, and postpartum mothers and their relationship with childbirth preparedness and complication preparedness.	The result shows that 93 percent of women had registered their pregnancies which is 67.4 percent and had saved money on visiting health facilities, 76 percent reported having planned for transportation and 84 percent decided to go to health facilities so there were several influencing factors such as the increase in the level of education of women causing an increase in the readiness to give birth. Women with complete knowledge of obstetric complications during pregnancy tend to be better prepared to face childbirth and women who have complete knowledge of pregnancy complications during childbirth tend to be better prepared and women with complete knowledge of postpartum complications also have a higher chance of being better prepared
3)	Determinants of knowledge of pregnancy	Wulandari & Laksono, 2020 /Indonesia	Quantitative	The purpose of this study Is to analyse	The result of the study shows that Urban women were 1,124 times more likely to understand the danger signs of

No	Title	Author, year and place	Design	Aim	Result
	danger signs in Indonesia			determinants of knowledge about the danger signs of pregnancy in Indonesia	pregnancy than rural women. Older women can identify the danger signs of pregnancy better than those aged 15-19. The more educated a woman is, the higher the knowledge about the danger signs of pregnancy that she has. Married women or those who live with their partner is 1,914 times likely to identify the danger signs of pregnancy rather than those who are not married or those who have never been in a relationship. Getting higher wealth status then knowledge about the danger signs of pregnancy will also be better. Multipara women grandee is 0.815 times more likely to understand the danger signs of pregnancy than primiparous. Woman with health autonomy has a 1,053 times chance of identifying the danger sign of pregnancy compared to those without autonomy. Women who are pregnant have knowledge of danger signs of pregnancy are better than women who are not pregnant. Knowledge gained from various Media exposure has a good effect on women's understanding of the danger signs of pregnancy.

Result and Discussion

Based on the article that has been obtained with the number of articles which are 10 articles chosen by using quantitative method (Salem et al., 2018). Ten (10) articles come from different countries, such as Saudi Arabian, Africa, India, America, and Indonesia. Journal articles with a total of 10 articles with a published year of 2017 (A4, A7) in 2018 (A2, A3, A5) 2019 (A8) 2020 (A1, A9, A10) 2021 (A1, A6). The result of the scoping Review, 10 journals that researcher obtain, get an average Grade of 28-36 with category (A) and an average grade of 19-27 with category (B). The researcher mapped the theme into five themes such as: Danger signs of pregnancy, categories of knowledge, factors affecting knowledge, Utilization of health facilities, methods of increasing knowledge (McAlister & Baskett, 2006; Ghulmiyyah & Sibai, 2012).

Discussion

Danger Signs of Pregnancy

a. Types of Danger Signs of Pregnancy

Types of danger signs of pregnancy consist of prevaginal hemorrhage, Prevaginal hemorrhage, Swollen hands and face, Blurred vision, Severe abdominal pain, high fever, headache, reduced fetal movements, continuous vomiting, seizures. These kinds of danger signs need to be known by pregnant women from the beginning of pregnancy (Chowdhury & Chakraborty, 2017). This is in line with Bolanko et al. (2021), stated that in her research, among respondents had awareness about the danger signs of pregnancy, childbirth and postpartum. According to Bililign & Mulatu (2017) reported that the most frequent danger sign of pregnancy is prevaginal hemorrhage.

Category of Knowledge

Category of knowledge According to [Abu-Shaheen et al. \(2020\)](#), state that pregnant women know at least one danger sign of obstetrics during pregnancy significantly. In addition, [Bililign & Mulatu \(2017\)](#), states that mothers with good knowledge should mention three danger signs ([Talbot & Macleannan, 2016](#); [Cheung & Lafayette, 2013](#)).

Factor Influencing the Knowledge

Socio-Demographic Characteristics and Obstetric Characteristics

a. Residence

The residence occupied by pregnant women has a significant influence on the mother's knowledge about the danger signs of pregnancy where mothers who live in cities tend to have 1.124 times chance of knowing about the danger signs of pregnancy compared to mothers living in rural areas ([Wulandari & Laksono, 2020](#))

b. Age

Age is the existence of a person measured in units of time viewed in chronological terms, normal individuals who show the degree of anatomical and physiological development, women with an age group of 20-24 years are 6 times more likely to have knowledge about the dangers of obstetrics compared to women aged 30 years and over, similarly pregnant women with an age category of 25-29 years are 2.4 times more likely to know the danger signs of obstetrics than women aged 30 and over ([Bolanko, Namo, Minsamo, Addisu, & Gebre, 2021](#)).

c. Profession

Profession is another important factor for knowledge of obstetric danger signs during pregnancy. Private employees are more aware of the danger signs compared to housewives ([Bililign & Mulatu, 2017](#))

d. Education

Education affects knowledge, the higher the education, the better the knowledge, besides that, mothers who have secondary education are more likely to have knowledge about the danger signs of pregnancy than mothers who have low education ([Bililign & Mulatu, 2017](#)). The level of education that can influence the mother in having knowledge about obstetric complications during pregnancy, childbirth and postpartum is an important factor for childbirth readiness ([Jungari, 2020](#)). The result shows that the more a person has a higher level of education, the more they tend to know the danger signs of pregnancy ([Wulandari & Laksono, 2020](#)).

e. Gravida

Multigravida and primigravida women have knowledge about the danger signs of pregnancy differently. Multigravida tends to have more knowledge about the danger signs of pregnancy that reaches (59.20 percent), where multigravida already has more information and experience, while for primigravida has knowledge about the danger signs of pregnancy (44.0 percent) so it can be concluded that the experience of childbirth can affect knowledge ([Chowdhury & Chakraborty, 2017](#)).

f. Economy

Economy is a large set of interrelated production and consumption activities that help in determining how resources are. Women with low monthly income, have little knowledge about the danger signs of obstetrics compared to women who have a high monthly income, similarly pregnant women with low monthly incomes then have more potential to have less knowledge of the danger signs of pregnancy, and vice versa ([Bolanko et al., 2021](#)). In low-income communities such as Indians tend to have the lack of good knowledge, because they are prioritized by needs and to travel to health facilities tend to be less interested ([Jungari, 2020](#))

Utilization of Health Facility

The use of health facility such as antenatal care visits have a positive impact on mothers and foetus, so that women with antenatal visits four or more times in making antenatal visits are more aware of complications compared to women who do less antenatal visits less than four times or do not visit at all ([Jungari, 2020](#)). This is in line with the study conducted by [Liben et al. \(2019\)](#) suggesting that women who attend antenatal care visits about five times tend to have more knowledge about the danger signs of pregnancy compared to women who do not make antenatal care visits, so it can be concluded that antenatal care visits as a booster of the maternal health information system, especially in increasing maternal knowledge about the danger signs of pregnancy. In addition, the importance of the husband's role in encouraging the wife to carry out antenatal care has big influence in the wife's interest in making

antenatal care visits and provides positive benefits where the husband and wife get education simultaneously so that the level of awareness of complications related to pregnancy and readiness for childbirth (Jungari & Paswan, 2019)
Method in Improve the Knowledge

a. Counselling

Counselling as a method in increasing maternal knowledge about the danger signs of pregnancy, where counselling during pregnancy through antenatal care (ANC) has an impact on increasing knowledge, maternal and child health including in childbirth and in choosing childbirth helpers, readiness to face childbirth, newborn care and breastfeeding (Assaf, 2018). Counselling of pregnancy danger sign through antenatal care (ANC) in addition to increasing maternal knowledge counselling can also help pregnant women in recognizing the danger signs of pregnancy and can seek help in a timely manner. Delays in finding health services for pregnancy complications can increase the risk of maternal pain and death, by recognizing the danger signs of pregnancy through counselling it can reduce the risk of maternal pain and death (Assaf, 2018)

b. Telemedicine

Based on Assaf (2018) Telemedicine has great benefits in reaching maternal knowledge about the danger signs of pregnancy, where pregnant women who are in remote areas far from health facilities are expected to continue to get maternal and child health education through the pregnancy and new-born diagnostic assessment (PANDA) project with the aim of conducting health education and assessing the prevalence of obstetric danger signs knowledge. PANDA is a telemedicine system based on mobile technology which is a combination of WHO recommendations for antenatal care, the system includes:

1. Smartphone with android icon-based application to collect personal and clinical data of patients. In addition, there are health education guidelines with a focus on birth preparedness including danger sign during pregnancy, childbirth, and newborns
2. Antenatal care treatment through panda system which contains solar backpack with photovoltaic power including diagnostic devices to test e.g., fever blood pressure etc.

Panda's medical unit which is a JAVA-based software system set up in referral hospitals and allows doctors to check data and create clinic charts with individual patient data (Sunness, 1988; Moleti et al., 2019).

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