Health Literacy and Its Association with Health Perception in Pregnant Women

ABSTRACT

Background and Objective: Pregnancy is an important period for women. Pregnant women's health literacy level usually increases during pregnancy and they gain a positive perception of health because they try to benefit from health services, and they are most willing to learn health-related information.

Objective: The aim of this stud0y is to examine the level of health literacy and health perception of pregnant women.

Materials and Methods: This descriptive study was conducted on 109 pregnant women who referred to the family health center in Suşehri, a district of Sivas, a province in the eastern part of the Central Anatolia region of Turkey, from February 2018 to February 2019. Pregnant Women Information Form, Health Literacy Survey, and Health Perception Scale were used to collect the data. Data were analyzed by the frequency test, t-test, One Way ANOVA, and correlation analysis.

Results: In the study, the mean scores of health literacy and health perception in participants were 89.86 ± 15.01 and 45.49 ± 9.53 respectively. The analysis of the health literacy and health perception of the pregnant women in terms of their education status demonstrated that mean scores of the health literacy and health perception were significantly ($P<0.05$) increased with increasing education level of pregnant women.

In this study, the participants had the highest level of literacy that had higher perception from their health, intended pregnancy, the interval between two pregnancies (months ≥ 24), and they used the modern family planning method after delivery.

Conclusion: The results obtained in the study demonstrated that the level of health perception and health literacy were sufficient in pregnant women, and education, intended pregnancy, and perception of pregnancy can affect level of health perception and health literacy. Therefore, women' health literacy levels should be determined and improved during preconception care.

Paper Type: Research Article

Keywords: Pregnancy, Literacy, Health literacy, Perception of health

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Nilufer Tugut
* Associate Professor, Department Nursing, Faculty of Health Sciences, Sivas Cumhuriyet University, 58140 Sivas, Turkey. (Corresponding author). nlfrtugut@gmail.com

Birnur Yesildag Celik
Instructor, Suşehri School of Health, Sivas Cumhuriyet University, 58140 Sivas, Turkey.

Ayse Yılmaz
Instructor, Suşehri School of Health, Sivas Cumhuriyet University, 58140 Sivas, Turkey.

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Introduction

The World Health Organization defines health literacy as "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health" (1). Health literacy is recently considered as an important factor to improve health status because of the following reasons: the complexity of the diagnosis process, limited general literacy rate, cultural differences, increased life expectancy at birth, minimize chronic disease burden, and age-related physical and cognitive changes(2,3).

Health literacy levels of individuals are an important variable that positively contributes to their health level (3-5). According to the Turkey Health Literacy Research, only one-third of the population has an adequate health literacy level (6). Low health literacy affects people's health negatively, causes less use of preventive health services but more use of medical services, increases hospitalization rates, health expenses and medication errors, and reduces compliance with self-care and treatment (6-11).

Among the groups affected by health literacy, most are older people, chronically ill individuals, and women (3-5). Women's health is affected by many factors such as psychosocial factors originating from family and society, the individual health status of women, health services, and fertility behaviors (4,12).

Pregnancy is one of the periods in which a woman's health is usually affected; therefore, the protection and maintenance of women's health is important during this period, because it affects not only the woman's health but also the newborn's and child's health (4,12). Around 800 women die every day in the world due to preventable causes related to pregnancy and childbirth. Several studies reported that the deaths from pregnancy will be decreased by 66% if women have completed at least primary education (13). Given that the general literacy level constitutes the basis of the health literacy concept, literacy rates in women are still low (7,14).

According to the Turkish Statistical Institute (TSI) data released in 2018, in 2017 in Turkey, people aged ≥25 years who completed at least one level of education comprised 89.5% of the whole population. Considering the fact that there is a correlation between the women's education level and mortality rate in infant and child, low levels of literacy among women continues to be an important problem [Turkey Demographic and Health Surveys (TDHS), 2018] (15).

There is a significant relationship between health literacy and health behaviors (16-18). Perception of health is important in acquiring health-related behaviors and attitudes. Perception of health is defined as "the combination of personal emotions, thoughts, prejudices and expectations about the individual's own health" (19). Perception of health is affected by many factors such as age, sex, education, socioeconomic status, motivation, environment, and culture (20,21). It is also measured by the individual's self-health evaluation (22,23). Therefore, while the level of health perception is determined, it is essential to focus on the determination and evaluation of the unwanted deviations from the individuals' functionality that are related to their daily living activities, well-being, and general perceptions of health (24). While an individual's positive beliefs about his or her own health are evaluated as "good perception of health", his or her negative beliefs need to be evaluated as "bad perception of health" (23).

Understanding the level of health literacy and the way health literacy affects women's health behavior is extremely important in maintaining

perception of health-related behaviors that are directly related to the process of the promotion of health in women (25). In studies conducted on the health literacy concept, it has been determined that health literacy rates are inadequate among women who are in reproductive age (26). Because pregnancy is a period in which women try to benefit from health services, and they are most willing to learn health-related information. This period can be considered as an opportunity in determining health perception and increasing the level of health literacy. Therefore, it is important to know how the pregnant woman's health literacy and health perception levels, can be improved. In the current study, it was aimed to determine the relationship between health literacy and health perception in pregnant women, and factors that affect health literacy during pregnancy.

Materials and Methods

Type of the study and participants: This study was carried out as a cross-sectional field study. All pregnant women who referred to the Family Health Center from February 2018 and February 2019 formed the study population (N = 130). Among them, all pregnant women met the inclusion criteria were included in this study (n=109). Women were included if they graduated from primary school level or more, were pregnant, and they volunteered to participate in this study.

Data collection: Research data were collected using the Pregnant Women Information Form, Health Literacy Questionnaire and Health Perception Scale.

Pregnant Women Information Form: The form was developed by the researchers includes 38 items such as participants' socio-demographic characteristics (age, education level, length of marriage, and their current and past pregnancies).

Health Literacy Survey: Sorensen first developed the 47-item Health Literacy Survey in Europe (HLS-E.U). Later, Toci, Bruzari, and Sorenson revised it under the name of Health Literacy Index, and the items were reduced to 25 (27,29). Later, the Health Literacy Index was adapted into Turkish as the Health Literacy Scale by Aras and Bayık Temel (2017) (28). The Turkish version of the Health Literacy Index was used in this study. The Health Literacy Scale consists of 25 items rated on a 5-point Likert-type scale from 1 to 5 (1: I can't / I can't, 2: I have a hard time, 3: I have a little difficulty, 4: I have some difficulty, 5: I have no difficulty). The Health Literacy Scale consists of four sub-scales. Consists of scale. "Access to Information" includes five items (items 1 to 5), the minimum score to be taken from this subscale is 5, and the maximum score is 25. "Understanding Information" contains seven items (items 6-12), the minimum score to be 7 and the maximum score 35. The "Appraisal/ Evaluation" subscale includes eight items (items 13-20), the minimum score to be 8 and the maximum score 40. The "Application/Using" subscale also includes five items (items 21-25). The minimum score to be taken is 5 and the maximum score is 25. The minimum score for the whole scale is 25 and the maximum score is 125. The standard deviation of the original form of the scale is 0.95. The Cronbach's Alpha coefficient of internal consistency of the subscales varies from 0.90 to 0.94 (29). The stability of the Turkish version is over time ($r = 0.74$, $p < 0.05$), and item-total score correlations ranged from 0.20 to 0.72 ($p < 0.01$). Cronbach's Alpha value is 0.92 for the whole scale and ranges from 0.62 to 0.79 for the subscales. Reliability coefficients between subscale scores and scale total score ranged from 0.74 to 0.91 ($p < 0.01$). The average time required to complete the scale is 5-10 minutes. Low scores indicate that the person's health literacy status is insufficient, problematic or

weak, while high scores indicate adequate and very good health literacy level (29). Data were collected through face-to-face interviews. Before the data were collected, the purpose of the research was explained to all participants and their consent was obtained.

Perception of Health Scale: Health perception was assessed by the Scale that was developed by Diamond et al. (2007) (30). Kadıoğlu and Yıldız et al., (2012) examined the validity and reliability of the Turkish version of this scale based on the five-point Likert (31). The scale consists of 15 items and 4 subscales: Center of Control, Self-Awareness, Certainty, and Importance of Health. Control center (COM) sub-dimension; It is aimed to determine whether the individual connects his/her health to factors other than himself (luck, destiny, religious belief, etc.), that is, whether he/she concentrates his/her control center in being healthy and his/her self-confidence to change his/her health. Self-awareness (SAS) sub-dimension; It is aimed to determine the level of the individual's perception of self-awareness about exercise and proper nutrition regarding being healthy, and his belief about whether being healthy is in his own hands. Precision (CES) sub-dimension; It is aimed at determining whether the individual has a definite idea about what to do to stay healthy and be healthier. Importance of health (HII) sub-dimension; It is aimed to determine the extent to which the individual attaches importance to his health, how much financial sacrifice he makes in this regard, and whether the importance he gives to health is one of the priorities in his life. The minimum and maximum possible scores to be obtained from the scale are 15 and 75 respectively. The Cronbach's alpha value of the scale was 0.77 (31). While a high score obtained from the scale indicates that individuals perceive their health positively, a low score indicates that they perceive their health negatively.

Data Collection: The participating pregnant women taken to a quiet and calm single room, where the interviews could not interrupted and they were informed about the study targets. Then, they also signed written constant form which indicating that they agreed to participate in the study. They were also informed about the scales to be used in the study, and asked them to fill in the scales on their own.

Ethical Issues: While the ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Sivas Cumhuriyet University permission to conduct the study in Sivas Provincial Health Directorate and Suşehri Family Health Center physician. The purpose of the study was explained to the pregnant women to participate in the study, and they were told that the data to be obtained would not be used out of the scope of the study, that their credentials would be kept confidential and would not be disclosed to third parties, and that they could withdraw from the study at any time. At every stage of the study, the study was carried out in accordance with the ethical standards established in the Declaration of Helsinki.

Statistical Analysis: The data obtained from the study were analyzed using the SPSS (Statistical Package for Social Sciences) for Windows 23.0. Arithmetic mean, standard deviation, numbers and percentages were used for the descriptive statistics. Whether the quantitative data were suitable for normal distribution was tested. Because the Kolmogorov Smirnov value was found as $p < 0.05$, the t-test, One-way ANOVA test and correlation analysis were used in the analysis. In the statistical analysis, P-values less than 0.05 were considered statistically significant.

Results

The mean age of the pregnant women was 29.19 ± 6.40 years. Of them, 49.5% (n=54) were senior high school graduates, 88.1% (n=96) had a nuclear family, 86.2% (n=94) did not work at any paid job, 64.2% (n=70) perceived their income as moderate, and 12.8% (n=14) had a consanguineous marriage. The longest place of residence was a district center in 78% of them (Table 1).

Table 1. Socio-demographic Characteristics of the Participating Pregnant Women (n = 109)

Participating Pregnant Women	(Mean Age= 29.19±6.40 years)
	Number (%)
Education	
Primary school graduate	11 (10.1)
Junior high school graduate	36 (33.0)
Senior high school graduate	54 (49.5)
Associate degree graduate	8 (7.3)
Longest place of residence	
City center	4 (3.7)
District center	85 (78.0)
Town / Village	20 (18.3)
Family Type	
Nuclear family	96 (88.1)
Extended family	13 (11.9)
Work status	
Employed	15 (13.8)
Not employed	94 (86.2)
Economic Status	
Income less than expenses	8 (25.7)
Income equal to expenditure	70 (64.2)
Income more than expenses	11 (10.1)
Whether she has a consanguineous marriage	
Yes	14 (12.8)
No	95 (87.2)

Among pregnant women, 91.7% (n=100) did not have any chronic diseases, 67% (n=73) referred to a health institution in case they had health problems, 56% (n=61) perceived their health well, 40.4% (n=44) never exercised, and 67% (n=73) never smoked (Table 2).

Table 2. Some Health Behavior-Related Characteristics of the Participating Pregnant Women (n = 109)

Presence of a Chronic disease	Number (%)
Yes	9 (8.3)
No	100 (91.7)
Behavior Displayed in Case of a Health Problem	
I neglect it	16 (14.7)
I try to treat it myself	20 (18.3)
I present to a health institution	73 (67.0)
Perceived Health Status	
Good	61 (55.9)
Moderate	39 (35.7)
Bad	9 (8.2)
Doing physical exercises	
Never	44 (40.4)
Irregularly	65 (59.6)
Smoking Status	
Never smoker	73 (67.0)
Former smoker	20 (18.4)
Smoker but quit after pregnancy	8 (7.3)
Current smoker	8 (7.3)

Of the participating pregnant women, 76.3% (n=81) did not use family planning method before pregnancy, 45% (n=49) had a planned and wanted pregnancy, 84.4% (n=92) did not have pre-pregnancy health checks, 55.7% (n=64) perceived their pregnancy as pleasant, 78% (n=85) wanted to give a normal (vaginal) birth, 69.7% (n=76) wanted to breastfeed their babies for 24 months, 48.6% (n=53) wanted to use withdrawal as postpartum family planning method, 63.4% (n=69) had 24-month or longer intervals between pregnancies (Table 3).

Table 3. Pregnancy-Related Health Behaviors of the Participating Pregnant Women (n = 109)

Using family planning method before pregnancy	Number (%)
Yes	28 (25.7)
No	81 (74.3)
Whether the pregnancy was an intended one	
Unplanned / unwanted	16 (14.6)
Unplanned / wanted	44 (40.4)
Planned / wanted	49 (45.0)
Health check before pregnancy	
Yes	17 (15.6)
No	92 (84.4)
How was pregnancy perceived?	
Difficult and strenuous	45 (44.3)
Pleasant	64 (55.7)
Preferred type of delivery	
Normal (Vaginal)	85 (78.0)
Cesarean Section	24 (22.0)
Intended duration of breastfeeding	
6 months	6 (5.5)
12 months	6 (5.5)
18 months	21(19.3)
24 months	76 (69.7)
Postpartum family planning preferences	
Traditional method - withdrawal	53 (48.6)
Modern method	56 (51.4)
Interval between two pregnancies (n=93)	
<24 months	34 (36.6)
≥24 months	69 (63.4)

The mean scores of the overall Health Literacy Scale and Access to Information, Understanding Information, Appraisal of the Information and Applying the Information subscales were 90.96±14.19, 18.73±4.36, 23.55±4.29, 29.22±6.78 and 20.00±2.42, respectively. The mean scores of the overall Health Perception Scale and its Center of Control, Certainty, and Importance of Health, and Self-Awareness subscales were 45.49±9.53, 15.10± 3.62, 12.15±3.42, 9.44±3.72, and 8.78±3.10, respectively (Table 4).

Table 4: The Mean Scores the Participating Pregnant Women Obtained from the Health Literacy Scale of and Health Perception Scale

Health Literacy Scale	Min-Max	X ±SD
Total	65.00-119.00	90.96±14.19
Access to Information	11.00-25.00	18.73±4.36
Understanding Information	17.00-30.00	23.55±4.29
Appraisal of the information	11.00-39.00	29.22±6.78
applying the information	15.00-25.00	20.00±2.42
Health Perception Scale	Min-Max	X ±SD
Total	32.00-65.00	45.49±9.53
Center of Control	8.00-23.00	15.10± 3.62
Self-Awareness	5.00-15.00	8.78±3.10
Certainty	6.00-17.00	12.15±3.42
Importance of Health	4.00-15.00	9.44±3.72

Of the participating pregnant women, those who had higher education level and economic status were obtained higher level of health literacy and health perception. In this study,

Participants who received the higher scores of the health literacy and health perception which had a health problem, quit smoking during pregnancy, had an intended pregnancy, had the interval between two pregnancies around 24 months or more, perceived pregnancy as pleasant, wanted to breastfeed between 12 and 18 months, and they wanted to use a modern family planning method during the postpartum period (Table 5).

There was a moderate, positive and significant relationship between the pregnant women's health literacy levels and their health perception ($r = 0.492$, $p < 0.05$,)

Discussion

In the present study, pregnant women's health perception and health literacy levels were studied. The mean score of the health literacy scale was 90.96 ± 14.19 among pregnant women, and it was considered as sufficient level (minimum: 25 and maximum: 125).

In Charoghchian Khorasani et al.'s (32) study which included 185 pregnant women and their health literacy levels were calculated using

Table 5: The Mean Scores the Participating Pregnant Women Obtained from the Health Literacy Scale of and Health Perception Scale According to Some of Their Characteristics

Characteristics	Mean of Health Literacy	Tests	Mean of Health Perception	Tests
Education Status				
Primary school graduate Junior high school graduate Senior high school graduate Associate degree graduate	74.54±5.78 90.19±12.51 93.14±13.90 102.25±14.36	*F=8.524 p=0.000	37.36±4.73 45.13±8.20 46.51±9.91 51.37±11.74	*F=4.255 p=0.007
Economic status				
Income less than expenses Income equal to expenditure Income more than expenses	91.36±11.97 87.59±13.98 99.66±12.07	*F=10.770 p=0.000	45.81±5.86 44.88±9.17 47.00±11.58	*F=0.489 p=0.615
Behavior Displayed in Case of a Health Problem				
I neglect it I try to treat it myself I go to a health institution	85.81±17.12 80.10±14.12 95.06±11.52	*F=7.998 p=0.001	42.18±10.56 45.80±8.51 46.13±9.95	*F=1.141 p=0.324
Perceived Health Status				
Good Moderate Bad	93.66±13.16 86.26±15.38 94.66±10.01	*F=3.821 p=0.025	47.64±9.50 42.68±8.87 44.22±10.17	*F=3.516 p=0.033
Whether the pregnancy was an intended one				
Unplanned / unwanted Unplanned / wanted Planned / wanted	75.93±4.90 90.36±13.91 96.40±12.91	*F=16.138 p=0.000	37.25±4.43 45.34±10.81 48.32±7.93	*F=9.411 p=0.000
Interval between two pregnancies (n=93)				
<24 months ≥24 months	81.82±10.73 97.01±13.50	**t=-5.613 p=0.000	41.38±7.94 47.59±10.40	**t=-3.009 p=0.003
Intended duration of breastfeeding				
6 months 12 months 18 months ≥24 months	77.50±1.97 100.16±4.11 94.95±10.87 90.19±15.19	*F=3.492 p=0.018	42.33±0.81 46.66±1.36 47.14±8.71 45.19±9.53	*F=0.477 p=0.699
Postpartum family planning				
Traditional method - withdrawal Modern method	82.58±11.25 96.66±5.13	*F=12.411 p=0.000	49.70±10.25 46.66±16.25	*F=5.552 p=0.000

**Independent T-test, *One way-ANOVA

different tool, the women's health literacy score was 42.7 ± 5.6 (minimum: 29, maximum: 55). In a study conducted by Rosliza and Muhamad (33) in Malaysia, the participants' health literacy levels were determined as high. In Rosliza and Muhamad's study, the mean score of health perception scale was 45.49 ± 9.53, which could be considered as the moderate level.

In our study, approximately half of the participating pregnant women (56.8%) were senior high school or higher school graduates. According to the data in TDHS 2018 (15), of the women aged 20-29, approximately 52% were senior high school or higher school graduates. Education level of the pregnant women who participated in our study was higher than the average in Turkey. Our finding revealed that level of health literacy and health perception in pregnant women were significantly increased with increasing their education level. Similarly, in several studies, a significant relationship was determined between education level and health literacy level (26,32,34,35). It is known that education level is an important determinant of health literacy (36,37). Considering that the health perception level is high in pregnant women whose education level is high. Education could be lead to increase the awareness and healthy lifestyle behaviors and this in turn may have contributed to promote the level of health literacy.

The analysis of the health literacy of the pregnant women in terms of the economic status variable demonstrated that level of health literacy is significantly different between pregnant women with different income groups. In some studies, it was determined that there was a significant relationship between economic status and health literacy, which was consistent with the result of our study (35,38,39), On the other hand, in Cho et al.'s study (40), no relation was determined between the economic status and health literacy levels. Having a good economic status may have led the pregnant women to seek more information to improve their health, which, in turn, may have improved their health literacy levels.

In the present study, it was determined that the behavior displayed by more than half of the participants in case they had health problems was that they presented to a health institution, and that the mean scores these women obtained from the health literacy was above the average. This situation can be explained by the fact that women had pre-natal follow-ups during pregnancy and that they were more concerned about their health in this period, which urged them to benefit from health services more.

In our study, it was determined that more than half of the pregnant women perceived their health status as good, and that their health perception and health literacy levels were high. The fact that those have high perception about their health, use more protective behaviors to improve their health. It is also a factor affect their health literacy levels (41). This situation can be explained by the fact that these pregnant women search more for information about their health; therefore, this led to increase the level of health literacy and health perception in this population.

In our study, a statistically significant correlation was determined between the planned pregnancy variable and the mean scores for the health literacy scale and health perception Scale. In their study (42), Morgan and Eastwood found a relationship between poor health perception and unplanned pregnancy. In another study, the variable planned pregnancy was determined to increase the mean score obtained from the Health Literacy Scale (43). Planned pregnancy is important because it enables people to benefit

from health services and to get preconception counseling in the prenatal period. However, intended pregnancy is an important factor affecting the perception of pregnancy. In addition, the perception of pregnancy is affected by many factors such as expectations from pregnancy, previous experiences, mental status, socio-cultural and economic status, women's social status, and pregnancy-related problems (44).

The analysis of health literacy levels according to the duration of breastfeeding demonstrated that the health literacy levels of the pregnant women who intended to breastfeed ≥18 months were high. In Avcı's (45) study, the mothers who exclusively breastfed their babies in the first six months after birth had high health literacy levels. Ohnishi et al. (46) stated that mothers with maternal health literacy were more likely to breastfeed their babies. Exclusive breastfeeding of newborn babies is related to not only mother's thoughts about breastfeeding, health status of the mother and baby, the mother's receiving education on breastfeeding before and after birth, but also to the level of health literacy (43,47). Considering the fact that breastfeeding increases the quality of life and life expectancy for babies and improves maternal health, increasing health literacy is an important step towards increasing mothers' breastfeeding success (43).

In terms of maternal and infant health, the interval between two pregnancies should be at least two years. In our study, more than half of the pregnant women had an interval of ≥24 months between pregnancies. In our study, the health perception and health literacy scores were high in the participants who had an interval of ≥24 months between two pregnancies.

In our study, more than half of the pregnant women wanted to use a modern method for postpartum family planning. According to the results of TDHS 2018, 70% of the married women used a family planning method. While 49% of them used a modern method, only 21% of women used a traditional method. Among the modern methods, the most of the women used condom. In several studies conducted, women have intend to use the modern methods after delivery (48,49). In our study, a significant correlation was found between the mean score of health literacy scale and the desire to use a postpartum family planning method. In this study, participants, intended to use a modern method, obtained higher scores of health literacy scale than those who wanted to use a traditional method. It is known that the use of a modern family planning method and having at least 24-month intervals between pregnancies lead to significant reductions in maternal and infant mortality, improvements in maternal health indicators, and a decrease in risks during pregnancy. Health literacy is regarded as an important variable in the development of family planning services in the postpartum period and increasing the contraception behaviors of women through modern methods.

There was a moderate, positive and significant relationship between the participating pregnant women's health literacy levels and their perception of health levels. In studies conducted in different sample groups, it was also demonstrated that there was a relationship between health literacy and perception of health levels (50,51). This can be explained by the fact that pregnant women with adequate health literacy are more likely to get information about their health and are more likely to take action to solve their health problems if they feel that their health is getting worse (52)

Limitations of the study: The most important limitation in the study is that it is a single-center study. Because the study has a small sample size and reflects only the results of this region, the results obtained from this study carried out at

the Suşehri Family Health Center are applicable only to the participating pregnant women.

Conclusion

The results obtained from the study indicated that the health perception and health literacy levels of the pregnant women in this study were sufficient and their levels could be changed according to the variables such as educational status, perception of health status, and the intervals between pregnancies.

The pregnant woman's health perception, ability to understand and use the basic information about health, and ability to make appropriate health decisions for her and her baby are affected by her health literacy level. The health literacy level of pregnant women who use the health system due to pregnancy will affect how they could use the health system. Improving pregnant women's health perception and health literacy levels will have a direct impact on the family and community health. The primary goal in the establishment of a healthier future should be the improvement of pregnant women's health literacy levels.

According to this result, health providers and healthcare professionals should determine pregnant women's health perception and health literacy levels and then decide which educational tools and methods are suitable for them. Accordingly, women's health literacy levels should be determined and improved during preconception care.

Conflict of Interests: The authors declare that they have no conflict of interests.

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