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Reproductive calendar of the Embera eyabida indigenous groups from the Nusidó community in Frontino, Colombia

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Reproductive calendar of the *Embera eyabida* indigenous groups from the Nusidó community in Frontino, Colombia

Objective. This work sought to characterize the calendar, pressure, and reproductive intensity of the *Embera eyabida* Indians from Nusidó. **Methodology.** Through the female reproductive history technique, aimed at women older than 10 years of age from Nusidó during 2011, information was gathered from 63 participants. Said women represent 76% of the total of those older than 10 years of age. **Results.** The reproductive calendar is characterized by a mean age of menarche of 12 years and a mean entry into conjugal union of 14.4 years with an interval of less than one year for the start of the first gestation. The average of the intergenetic intervals was 29.3 months; these are short in 41.9% of the women, medium in 54.8% and above 60 months in 3.2%. Findings include: a medium and lower Reproductive Stress Index (RSI) in 71.4% of the women and a Reproductive Rate (RR) between medium and high in 19.0% of the women. **Conclusion.** Although early ages are observed in various parameters of the reproductive life, the results permit identifying changes in the indigenous people from Nusidó with respect to prior studies for the ethnic group and the subgroup; among these, there are: improved access to female literacy, delay in the entry into the union, and the start of maternity in young women.

Key words: reproductive behavior; indigenous population; women; Colombia.

Calendario reproductivo de los indígenas *Embera eyabida* de la comunidad de Nusidó, Frontino, Antioquia

Objetivo. Caracterizar el calendario, la presión y la intensidad reproductiva de los indígenas *Embera eyabida* de Nusidó. **Metodología.** Mediante la técnica de historia reproductiva femenina, dirigida a las mujeres mayores de 10 años de Nusidó en el año 2011, se levantó información de 63 participantes. Dichas mujeres representan el 76% del total de mayores de 10 años. **Resultados.** El calendario reproductivo se caracteriza por una edad media de menarquia de 12 años y una media de entrada a la unión de 14.4 años, con un intervalo de menos de

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un año para el inicio de la primera gestación. El promedio de los intervalos intergenésicos fue 29.3 meses; estos son cortos en el 41.9%, medios en 54.8% y mayores de 60 meses en 3.2%. Un Índice de Estrés Reproductivo (IER) medio y menor en el 71.4% y una Velocidad Reproductiva (VR) entre media y alta en el 19.0%. **Conclusión.** Aunque se observan edades tempranas en varios parámetros de la vida reproductiva, los resultados permiten identificar cambios en los indígenas de Nusidó con respecto a los estudios anteriores para la etnia y el subgrupo. Se destacan entre ellos: la mejoría en el acceso a la alfabetización femenina, el retraso de la entrada a la unión y del inicio de la maternidad en mujeres jóvenes.

Palabras clave: comportamiento reproductivo; población indígena; mujeres; Colombia.

Calendário reprodutivo dos indígenas *Embera Eyabida* da comunidade de Nusidó de Frontino, Colômbia

Objetivo. Caracterizar o calendário, a pressão e a intensidade reprodutiva dos indígenas *Embera eyabida* de Nusidó. **Metodologia.** Mediante a técnica de história reprodutiva feminina, dirigida às mulheres maiores de 10 anos de Nusidó no ano de 2011, levantou-se informação de 63 participantes. Ditas mulheres representam 76% do total de maiores de 10 anos. **Resultados.** O calendário reprodutivo se caracteriza por uma idade média de menarca de 12 anos e uma média primeiramente à união de 14.4 anos com um intervalo de menos de um ano para o início da primeira gestação. A média dos intervalos intergenéricos foi 29.3 meses, estes são curtos em 41.9% das mulheres, meios em 54.8% e maiores de 60 meses em 3.2%. Um Índice de Estresse Reprodutivo (IER) meio e menor em 71.4% das mulheres e uma Velocidade Reprodutiva (VR) entre média e alta em 19.0% das mulheres. **Conclusão.** Ainda que se observam idades precoces em vários parâmetros da vida reprodutiva, os resultados permitem identificar mudanças nos indígenas de Nusidó com respeito aos estudos anteriores para a etnia e o subgrupo. Destacam-se entre eles, a melhoria no acesso à alfabetização feminina, o atraso da entrada à união e do início da maternidade em mulheres jovens.

Palavras chave: comportamento reproductivo; população indígena; mulheres; Colombia

Introduction

Studies in indigenous population in Latin America are scarce and the information available on ways of life is fragmentary. Nevertheless, data available permit establishing economic, cultural, and political inequalities that impact upon their ways of life and places them among the most vulnerable groups in the social structure to which they belong.^{1,2} Due to the aforementioned, for the people, remaining as culturally differentiated units becomes a permanent challenge, hence, the development of adaptation, survival, and resistance strategies to ensure their continuity; one of said strategies is the reproductive dynamics as a tool of the ethnicity.^{3,4} In this sense, studies on the population dynamics and aspects surrounding reproduction in indigenous groups are of valuable

interest for the State and its institutions, academia, and indigenous organizations.

In the department of Antioquia, studies about reproduction in the *Embera*, *Tule*, and *Senú* indigenous peoples propose that high fecundity is linked to physical and cultural survival, sustenance of an ethnicity project, as well as the acquisition and maintenance of prestige of indigenous women.³⁻⁵ However, in recent years some historical and relational variations are proposed that express transformations in the reproductive decisions of indigenous individuals and groups, which we seek to approach herein. Thereby, this makes it necessary to study the specific reproductive dynamics of the ethnic

groups, subgroups, and indigenous communities from the department of Antioquia that permit evidencing similarities and divergences in reproductive terms. Thus, this article's objective advances on that necessity to characterize the calendar, pressure, and reproductive intensity of the *Embera eyabida* Indians from the Nusidó community in the municipality of Frontino, western Antioquia.

The *Emberas*, which in their language means people, belong to the Chocó language family and represent the third place in demographic importance in Colombia with approximately 71 412 people.⁶ Two of this ethnic group's main characteristics are: its large spatial dispersion, which is seen as a defensive strategy against pressure from other groups and that they are considered a macro-ethnicity comprised of several subgroups, which respond to diverse eco-cultural adaptations and to the degrees of interrelation with the Mestizo society.^{7,8} In relation to the subgroups from the *Embera* ethnic group, four are distinguished, thus: the *oibida* or jungle people, the *dobida* or river people, the *eyabida* or mountain people, and the *chamibida* or San Juan River people.⁸

The *Embera* constitute the first indigenous ethnic group in demographic importance in the department of Antioquia (Colombia) with nearly 20 266 people, representing three *Embera* subgroups (*eyabida*, *chamibida*, and *dobida*). Of these, the *Embera eyabida*, popularly known as *catíos* and subgroup with which these studies were carried out, represent in the department of Antioquia the majority *Embera* subgroup with nearly 16 460 people and live in 13 municipalities of the Western and Urabá subregions.⁹ The *Embera eyabida* population from the municipality of Frontino to the west of the department of Antioquia has 2 600 inhabitants organized in three reservations and 21 communities, representing 39.4% of the total *Embera* population from western Antioquia and 14.2% of the population from the municipality.⁹ The group of indigenous members from Frontino has special characteristics given that two differential eco-cultural adaptation patterns can be distinguished: the *eyabida*

inhabitants from communities near the municipal center, with strong pressure and contact with the Mestizo population and the *oibida*, inhabitants from jungle zones, of difficult access and little contact with the Mestizo population. The Nusidó community, where the results from these studies are frameworked, is made up of the *Embera* Indians from the *eyabida* subgroup and belongs, along with the *Loma de los Indios* and *Llano Río Verde* communities, to the Nusidó reservation. According to census data provided by the department's Indigenous Management (*Gerencia Indígena*) for 2011⁹ the Nusidó community has approximately 256 inhabitants, organized into 41 homes and 55 families.

Nusidó is 1.5 h by land from the municipality of Frontino and its territory is crossed by the road that communicates the municipality with the districts and villages. One of the peculiarities of this indigenous community is that it is completely surrounded by Mestizo villages, which favors continuous interethnic contact. Its main productive activities are related cultivation and processing of sugarcane from which brown sugar is destined for commercialization in the municipality of Frontino and for family and community consumption. Another production activity identified in homes in Nusidó is the breeding of animals destined mainly for their own consumption, highlighting among these: hens, roosters, ducks, pigs and cows. Most of the families in the community depend largely on the market economy and, for such, must establish commercialization relationships for their crops and handicrafts or of their workforce in Mestizo towns surrounding them.^{10,11}

Methodology

The information was registered in the Nusidó community during a period of field work conducted in July 2011. As demographic technique, the female reproductive history adjusted and validated in previous studies with indigenous population was applied.^{3-5,12} Said technique seeks to keep a complete and chronological record of fecundity

and consists in that the woman interviewed describes the main events of her reproductive life, which, in all, permit constructing the reproductive calendar. Besides, it includes questions that permit observing the reproductive decisions and, upon inquiring for the total number of gestations and births, permits detecting stillbirths, abortions, and offspring born alive that have died.⁵ This last aspect is not addressed in this article.

With respect to the representativeness, 63 women participated with ages ranging between 10 and 61 years and who represent 76% of the total number of women older than 10 years of age from Nusidó. The technique was applied by this article's main researcher and author; however, and because Castilian is not the participants' native language, it was necessary in certain cases to have the presence of assistance from an indigenous member who acted as translator to facilitate researcher-interlocutor communication. Participant profile was homologated with that implemented and described in previous research with these communities.^{13,14} This study had the support of four indigenous assistants from Nusidó, one was a male. Support from women assistants was privileged, given the emphasis of the interviews on female fecundity and, hence, translation among peers favored openness of the interlocutor – improving the quality and detail of the information.

From the data registered, it was possible to characterize the reproductive calendar, also known as *timing* and which comprises the mean ages of the stages of the female reproductive life, like menarche, sexual intercourse, entry into the union, first gestation, first birth, intergenetic intervals, and months of lactation.¹⁵

Calculations were made to permit approaching the pressure and reproductive rhythm that, although problematic concepts derived from the socio-demography, permits an approach into the reproductive wear or to the significance of the effects of reproduction in women. Regarding the first, the Reproductive Stress Index (RSI) was calculated, which: “[...] summarizes the load that

successive pregnancies and lactations represent for women, that is, represents the number of years within the reproductive life that each woman has dedicated to these states”.³ To calculate the RSI of the *Embera eyabida* women from Nusidó, this study followed the equation proposed by Harrington,¹⁶ which represents the proportion of years the woman has dedicated to reproductive life; said index is the quotient between the total duration of the physiological and nutritional stress by 100 – obtained from the sum of the months dedicated to gestation and lactation – and the duration of the reproductive life to the date; in this study, said denominator was obtained by subtracting the current age in months less the age of menarche in months. It is also pointed out that to make the reproductive wear of the women older than 49 years of age more visible, the reproductive life (denominator) was calculated with this age instead of the current age. For this calculation, the following categories were followed: very low (1 to 19%), low (20 to 39%), medium (40 to 59%), high (60 to 79%), very high (80 to 99), exceeded (>100).

To calculate the reproductive rhythm, the Hobcraft¹⁷ proposal was followed, which postulates the Reproductive Rate (RR) – a measurement of the duration of stress and intensity given in the function of the women's biological reproduction; in that sense, these are classified according to the rhythm of their reproductive function. According to the author, medium reproductive women are those who at the age of 20 to 24 years have three offspring; 25 to 29 years with four or five offspring; and 30 to 34 years with six and more offspring. High reproductive women are those who at the age of 20 to 24 years have four and more offspring; 25 to 29 years with five and more offspring; and 30 to 34 years with six and more offspring.

To process and analyze the demographic data derived from the female reproductive histories, a manual revision of the information was carried out to detect and correct inconsistencies, errors, omissions, and double counts; thereafter, the histories were digitized into matrices constructed in Microsoft Excel and then calculations and graphics were made in the same software. During

this process, with the demographic data the study followed the same international definitions and procedures implemented in prior studies to correctly perform the demographic calculations and specially care for the comparisons.^{4,18} All this was carried out to follow the internal and external validity criteria and reliability. Regarding ethical considerations, these studies adhered to the guidelines from Resolution 008430 of 1993 by the Colombian Ministry of Health according to whose classification, these are minimum-risk studies.¹⁹ However, given that the research was conducted with indigenous groups, other special ethical guidelines and procedures were followed according to the determinations of the indigenous organizations in the department of Antioquia.¹³

When going into the field to register the information, communication was established to manage consent from the indigenous organizations at the regional level like the *Organization Indígena* from Antioquia (OIA) and at the municipal level with the *Cabildo Mayor Indígena* from the municipality of Frontino and the *Cabildo Local* from the Nusidó reservation. Also, each participant received detailed explanation of the objectives of the studies and their consent was secured. Lastly, the information recorded was carefully treated, respecting the confidentiality of the interlocutors and not revealing data that could facilitate their identification. Likewise, the information was only used for academic purposes and it is available for the participants, the community, and indigenous organizations implicated; this is accomplished through the delivery of the report and spaces to socialize the results.

Results

The mean age of the 63 women from Nusidó was 26.3 ± 14.2 years, with a minimum age of 10 years and a maximum of 61 years. Regarding literacy, it was found that 65.0% of the women know how to read and write. With respect to access to schooling, understood in this case as years completed, it is highlighted that 30.2% of the women did not enter formal education, while

45.9% attended primary education to some degree. It should be noted that an important number of women (23.9%) were found who attended some degree of secondary education; among these, 11.1% are high-school graduates and 3.2% university students.

Reproductive calendar –timing–

Menarche was determined for 58 women who had experienced this event; the average age for such was 12 ± 0.5 years with a minimum of 11 years of age and the maximum of 14 years of age. With respect to the question on the initiation of sexual intercourse, presuming no exact correspondence with the age of the entry into the union, it was determined that, of the 63 women with female reproductive history, 74.7% had begun their sexual life, 19.0% still had not, and 6.3% refused to answer the question. Of the total number of women who had initiated sexual intercourse ($n=47$), the average age of initiation was 13.9 ± 1.7 years, with a minimum age of 11 years and a maximum of 19 years. Before 15 years of age, 72.3% of the women had initiated their sexual life and 95.7% had done so at 17 years of age.

The demographic findings permit indicating that, of the 63 women participants, 77.8% had entered a union ($n=49$) and the average age was 14.4 ± 2.1 years; the minimum age was 11 years and the maximum was 21 years. Lastly, it is highlighted that 98.0% of the women from Nusidó are engaged by 19 years of age and less. With respect to the first gestation, it is pointed out that the average age was 14.9 ± 2.1 years (minimum 12 years of age and maximum 22 years of age). Of the women who have had their first gestation one in every two had it at 14 years of age and less. The time interval between the first union and the first gestation was on average 10.6 ± 7.1 months (minimum one month and maximum 31 months). It is also noted that 56.3% of the women got pregnant nine months after entering into the union.

Regarding the first birth, the average age was 15.6 ± 1.9 years (minimum 13 and maximum 23 years). It was noted that more than half the women had their first birth before 16 years of age.

Table 1. Reproductive calendar in *Embera eyabida* women from Nusidó. Frontino, Antioquia

Reproductive calendar	Number	%
Age of menarche (n=58)		
Without menarche	5	7.9
11	8	13.8
12	44	75.9
13	5	8.6
14	1	1.7
Age at initiation of sexual intercourse (n= 47)		
11	1	2.1
12	8	17.0
13	11	23.4
14	14	29.8
15	7	14.9
16	2	4.3
17	2	4.3
18	1	2.1
19	1	2.1
Age of the entry into the union (n=49)		
11	1	2.0
12	6	12.2
13	12	24.5
14	10	20.4
15	10	20.4
16	3	6.1
17	3	6.1
19	3	6.1
21	1	2.0
Age during the first gestation (n=45)		
12	2	4.4
13	10	22.2
14	11	24.4
15	8	17.8
16	7	15.6
17	2	4.4
19	4	8.9
22	1	2.2
Age of the first birth (n=44)		
13	3	6.8
14	10	22.7
15	13	29.5
16	6	13.6
17	4	9.1
18	3	6.8
20	4	9.1
23	1	2.3

Note: differences in *n* are due to the exclusion of the calculation of those women without the event or without response.

According to that registered with the women from Nusidó, data on lactation is available from 40 of them; analyses are presented in months. The mean for lactation was 14.9 ± 6.4 months (minimum one month and maximum 27 months). The intergenesic interval (IGI) is understood in these studies as the period of time transpired between parturition and the start of the following gestation. For Nusidó, the mean of the intergenesic intervals was 29 ± 16 months (minimum 13 months and maximum 102 months). It was also found for Nusidó that 41.9% of the women have an IGI below 24 months; besides 54.8% of the women had an IGI average between 24 and 59 months and 3.2%, corresponding to one woman, with an interval above 60 months. The RSI calculation was conducted with 42 (47.6%) of the 63 women participants, the rest did not present reproductive, physiological, and nutritional stress. Of the women who apply for the RSI calculation, 71.4% (30) are in medium, low, and very low categories and 28.6% (12) are in high, very high, and exceeded categories. Per the RR for the 63 women with reproductive history, calculation was applied to 12 of them (19.0%), given that the rest did not comply with the inclusion criteria. Thus, it is highlighted that the *Embera eyabida* from Nusidó present RR between medium and high; which indicates that, of the women between 20 and 34 years, 9 were classified as medium reproducers and three as high reproducers.

Discussion

The reproductive calendar of the *Embera eyabida* women from Nusidó permits observing continuity and transformations in the individual and collective reproductive lives; said patterns are identifiable if the results of studies conducted in the community are compared to others reported in the *Embera* ethnic group and the *eyabida* subgroup from the department of Antioquia in recent decades.

One of the most significant visible changes in Nusidó with respect to similar prior studies refer to the experience of female sexuality, which has been

culturally linked to maternity and, hence, as vehicle to contribute to the group's reproduction. Due to which, prior studies on fecundity in the *Embera* ethnic group did not address the start of sexual intercourse as a stage of the reproductive behavior, given that according to the information registered, sexual intercourse was experienced simultaneously with the first union and the start of procreation.^{3,4,12} In that sense, the fact that some women from Nusidó, mainly the youngest opt for the experience sentimental relationships (engagement) and start of sexual intercourse prior to the union, represents a significant change in the female reproductive life. According to the interviews conducted, changes are identified in the life projects of the young women, which are centered on the desire of personal projection through schooling or living experiences that forge their being as autonomous subjects. In spite of those changes, in the means of entry into conjugal union, first gestation, and first birth the *eyabida* position persists of early ages, as detailed in the results.

Notwithstanding the changes identified in some women from Nusidó, the mean age of entry into conjugal union at 14.4 years is related to that reported in the late 1990s by Gálvez *et al.*,³ for *eyabida* women from Antioquia of 14.3 years, which could indicate that in Nusidó the traditional position of uniting at early ages is more persistent than the delay of that stage. Now, if we compare the mean age of entry into conjugal union of the women from Nusidó with reports from *Embera* Indians from the *chamibida* subgroup from Antioquia like Cristianía with 17.8 years⁴ and Bernardino Panchí with 17 years,⁵ we see that for Nusidó the age is lower by three years. Said difference among mean ages of entry into conjugal union of the *eyabida* and *chamibida* women from Antioquia may be due to the higher possibilities the latter have for access to formal education and other activities of personal social projection that keep them away for some time from maternity or the conjugal union.^{3,4}

With respect to the first gestation, for the *Embera eyabida* women from Nusidó a mean age is reported of 14.9 years and for the *Embera*

eyabida from Dabeiba by mid 1980s a mean age of 15.7 years was reported, with those from Nusidó being younger by 8 months. The mean for the first gestation from Nusidó turns out being the lowest age if compared to that of the *Embera chamibida* from the southeast of Antioquia with which there is a difference of three years and more, thus: Cristianía 18.9 years⁴ and Bernardino Panchí 18 years,⁵ thereby, reflecting continuity of the differences among *Embera* subgroups from Antioquia. The current mean age for the start of the first gestation in Nusidó is among the lowest ages reported, close to that reported 17 years ago by Gálvez *et al.*, for the total number of *Embera eyabida* from the department of Antioquia of 14.3 years.³

The age of the first birth for Nusidó is reported at 15.6 years, and it is lower if compared to the other *Embera eyabida* and *chamibida* groups from Antioquia during the 1980s, 1990s, 2000s. The comparison between the *Embera eyabida* subgroup permits noting that the age of the first birth in Nusidó is exceeded by 9 months according to that reported by Alcaraz, Arias and Gálvez in 1985 in Dabeiba with 16.5 years¹² and by 3 months for the *Embera eyabida* from Antioquia in the study by Gálvez *et al.*, with 15.9 years,³ which suggests a gradual decrease in the mother's age at the first birth which could have negative effects on the maternal health and on the newborn's survival. Comparison of the mean age of the first birth in Nusidó of 15.6 years with the *chamibida* women from the communities of Cristianía in 2002 of 19.7 years⁴ and Bernardino Panchí in 2011 of 18 years,⁵ it is lower by four years; thus, underscoring the profound differences among the *Embera* subgroups and the effect of the diverse ways of life upon the reproductive decisions.

The IGI for Nusidó has a mean of 29.3 months, which refers compliance for the *eyabida* of said maternal recovery period, and in comparison with the *chamibida* from Bernardino Panchí this indicator is exceeded by nine months. It is also favorably highlighted how the IGI of the women from Nusidó for 2011 is higher by 5.5 months than that reported by Gálvez *et al.*³ for the *Embera eyabida* from Antioquia. Similarly, the

IGI from Nusidó is also higher than that reported by Alcaraz, Arias, and Gálvez in 1985 for the *eyabida* from Dabeiba, who state that 56% of the women have IGI below 24 months¹² besides, the IGI from Nusidó also exceeds that reported by Arias in 2002 for the *chamibida* from Cristianía with IGI below 24 months in 69% of them.⁴

With respect to the RSI, Gálvez *et al.*³ state that *eyabida* women from Antioquia in 1996 had strong stress in 71.2% of them. For the Nusidó community and according to calculations from the 2011 studies, 71.4% of the women have an RSI between medium and low, which suggests a change of the reproductive stress in the last 15 years, upon going from a strong stress to medium and low. Nevertheless, for Nusidó, RSI is maintained in the categories of high, very high, and exceeded in 28.6% of the women. By late 1990 Gálvez *et al.*,³ reported the Reproductive Rate of the *Embera eyabida* from Antioquia between medium and high in 55.6% of the women, said calculation contrasts significantly with the one from Nusidó, which resulted in 2011 with an RR medium and high in 19% of the women.

Conclusions

Comparison of the reproductive calendar of *Embera eyabida* women from Nusidó during 2011 with the data reported in previous studies carried out with indigenous *Embera* ethnic groups and *eyabida* and *chamibida* subgroups during the last three decades, permits identifying persistence and the start of a series of transformations, which essentially refer to the idea of intra-ethnic diversity and to the necessity of assuming a posture that recognizes differences existing among indigenous ethnic groups, subgroups and communities. Thus, important differences are identified in the way of experiencing reproductive life, which are associated with their cultural constructions and the influence of interethnic contact with western society.

Additionally, we note the historical variability these societies present, previously purported immune

to change because of historical and relational positions. It permits pointing out important continuities like preconization of maternity and fecundity as input of ethnic survival, early ages of entry into conjugal union, first gestation, and first birth. However, it is possible note along with the continuities, the establishment of new tendencies that influence the reproductive behavior and which start as individual actions but which are increasingly installed and reflect the complexity of indigenous reproduction, for example, female literacy and schooling, experiencing intimate relationships like courtship or rather the preference for being single, acceptance and attendance to biomedical health services to address issues of reproductive life like care at birth or limitation of the number of offspring through contraception methods.

The aforementioned, in the best of all cases, could stir critical reflection from areas of health and its professionals around the implementation of standardized healthcare actions. For the communities and indigenous organizations and the State and its institutions, serving as input for the necessary cultural appropriateness of the policies and programs aimed at this population, structurally marked by systematic oversight of its rights to equality and difference.

Finally, the necessity is expressed of applying a comprehensive approach that permits visibility of the complexity of the ways of life of the indigenous peoples from Antioquia, which determine the reproductive behavior and upon which are materialized the cultural constructions, the material conditions of life, the family and community type relationships, and the interethnic-type external relationships and – definitely – the perspectives of ethnic survival as culturally differentiated units. The aforementioned also means broadening the view from disciplines in the health area, among them nursing that focuses on caring for health and life, can broaden their possibilities of action and knowledge from the integration of other sciences that, like the social sciences, contribute to the understanding of complex realities in health, as documented in this work.

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