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Qualitative study of pregnancy and childbirth experiences in Somali women resident in Sweden

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Objective To explore the attitudes, strategies and habits of Somali immigrant women related to pregnancy and childbirth, in order to gain an understanding as to how cultural factors might affect perinatal outcome.

Methods Interpreter assisted qualitative in depth interviews around topics such as attitudes and strategies regarding childbirth.

Participants Fifteen women from the Somali community in a city in Sweden, between the ages of 20 and 55 years with delivery experience in Somalia and Sweden.

Results The interviews describe how the women themselves perceived their experiences of childbirth in the migrant situation. Many voluntarily decreased food intake in order to have a smaller fetus, an easier delivery and to avoid caesarean section. The participants considered a safe delivery to be the same as a normal vaginal delivery. They reduced food intake in order to diminish the growth of the fetus, thereby avoiding caesarean section and mortality. The practice of food intake reduction, while rational for the participants when in Somalia, was found less rational in Sweden and may lead to suboptimal obstetric surveillance.

Conclusions Somali women have childbirth strategies that differ from those of Swedish women. These strategies should be seen as 'survival behaviours' related to their background in an environment with high maternal mortality. The hypothesis generated is that there is a relationship between the strategies during pregnancy and adverse perinatal outcome among Somali immigrants. Considering the strong association of the habits to safe birth, it seems doubtful whether the women will change their habits as long as health care providers are unaware of their motives. We suggest a more culturally sensitive perinatal surveillance.

INTRODUCTION

Sweden enjoys one of the lowest perinatal mortality rates in the world and the decrease in perinatal mortality has been attributed to socio-economic improvements and to better perinatal care^{1,2}. Swedish studies from the seventies and the eighties have not shown higher perinatal mortality among immigrant women^{3,4}. However it has recently been shown that children born in Sweden, to women originating from sub Saharan Africa, have a higher risk of perinatal mortality and of being small for gestational age (SGA)⁵. Differences in perinatal mortality still remained, even after adjustments for obstetric risk factors or maternal background factors⁶. The population of 20,000 Somalis in Sweden is believed to be one of the most segregated immigrant groups as well as

the one with the highest proportion of unemployment in Sweden (The National Integration office, Report 99:4).

Migration is associated with increased physical and psychological illness and the global migration process is said to create, not only new patterns of disease, but also new challenges for the health care systems in the countries of reception⁷. Links to perinatal mortality and morbidity among women emigrated from developing countries could be discussed. Part of the explanation for increased low birthweight and perinatal death lies in the characteristics of the mothers own intrauterine and childhood environment which might interfere with their optimal growth and development^{8,9}. Culturally related factors such as malnutrition, sub optimal care and reduced psychosocial resources after a migration process might be more important among immigrant groups from low-income countries. Previous studies from Somalia have described a tradition of routinely reducing food intake during pregnancy in order to prevent the fetus from gaining too much weight^{10,11}. Social factors,

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such as being a single immigrant mother with low psychosocial resources, are also associated with small for gestational age infants¹². Another factor is the standard of perinatal care, which has been claimed to be one of the most important factors when achieving lower perinatal mortality¹³.

Giving birth in a foreign country is an experience that provides little access to the normal traditions and support of the home environment. Qualitative methods are commonly used in anthropology concerning the experience of childbirth and interaction between patients and health care professionals. Medical-anthropological studies seem to be appropriate to provide additional information regarding the results of earlier epidemiological studies and may provide a new hypothesis¹⁴.

The aim of the present study was to explore the culturally determined attitudes, strategies and habits of Somali immigrant women towards pregnancy and childbirth in Somalia as well as in Sweden, in order to gain an understanding of how such factors affect perinatal outcome.

METHODS

Study population

Qualitative interviews were performed, from October 1998 to January 1999, on fifteen women born in Somalia and now living in Sweden. The anthropologist co-worker (SJ) had previously established a relationship of trust with the Somali immigrant groups through earlier field studies (The social construction of virginity: Strategies among Somali women, SJ. Rethinking integration: An anthropological field study of Muslim groups, Carlborn A. Unpublished manuscripts). Open meetings were held by BE and SJ where the background and aim of the study were presented to Somali immigrants associations in the area. After the meetings, 22 women interested in being interviewed were signed up. When the moment for booking occurred seven women for various reasons chose not to participate. Women with birth experience in Sweden and Somalia were recruited to the study population. Two women had given birth only in Somalia and five only in Sweden. The women constituted a homogeneous group with respect to cultural and religious backgrounds. The range of age was 20–55 years. The childbirth experience varied from 2 to 9 children. The time elapsed since last delivery was between 6 months and 7 years. However, their social and demographic backgrounds were heterogeneous, as were their reasons for migrating at one point in the 1989–1995 interval.

Interview topics were perception, attitude, practice and strategy regarding pregnancy and childbirth both in Somalia and Sweden. The women were asked questions about background and demographic conditions. Particular emphasis was placed on medical issues regarding

pregnancy and delivery experience, the relationship to social network patterns, nutrition habits and practices and strategies during pregnancy, delivery and post delivery periods.

Design and interview style

The interviews were mainly explorative in connection with the topics mentioned, as little was known from current literature about motherhood experiences of immigrants in Sweden. The interpreter assisted interviews were semi-structured with open-ended questions, and lasted approximately two hours per woman. The anthropologist in the research team (S.J.) performed the interviews in the localities of the different Somali immigrant associations in their own residential areas. The female interpreter was informed beforehand about the aim of the study and its topics. Translation was simultaneous and unclear phrases were followed up immediately. Data collection was characterised by openness to new ideas and follow up questions during the interviews. Theoretical saturation was achieved, i.e. no further information was discerned¹⁵ after about 10 interviews, but all booked interviews were conducted. The interviews were tape-recorded and the Swedish version was then transcribed verbatim. The preliminary results of the study were discussed in depth with several of the Somali women in order to increase validity. During the discussions, the research team described the nutrition habits as a form of 'self-starvation'. After objections from the respondents an euphemism was performed, and the expression 'voluntarily reduction of food-intake' was used instead.

Text analysis

A multidisciplinary research team consisting of anthropologists, epidemiologist, primary care physicians and obstetricians made a systematic text analysis of the interview material. Important topics from the text were coded. The coding of the topics was made independently by two of the researchers (B.E. and S.J.), and compared and analysed further. The independent codings of the content topics were compared. The experiences of pregnancy and childbirth in the two countries were compared and the following themes were generated: pregnancy and delivery experience, nutrition habits, social network and genital mutilation.

The Ethical Research Committee of Lund University has approved the study.

RESULTS

Pregnancy experience

Not all the women had experienced routine antenatal care in Somalia but all had participated in the Swedish

antenatal care program. A majority expressed satisfaction with the surveillance and care provided in Sweden. Some, however, explained that they did not understand why the antenatal care practice should be viewed as necessary, saying that they saw pregnancy as a normal, healthy state; *'What would my friends in Somalia say if I went a long way to hospital for a check-up, knowing that everything was OK with the pregnancy?'*; *'Somalian women do not always want to go to the doctor, we count the 40 weeks by ourselves and if something goes wrong we will feel it'* (Woman A).

Few women could recall advice relevant to perinatal surveillance and precautions from midwives or obstetricians. For example none of the women could remember having been informed about the types and options of obstetrical anaesthesia. Some women could not even seem to recall any particular new knowledge about motherhood following attendance in the perinatal care system. *'I do not remember that they told me anything useful. I do not really understand why I have to go to the midwife and take blood samples. I think you are nice in Sweden but I want to know why I have to be checked'* (Woman B).

Several women were bothered by severe nausea and vomiting during early pregnancy both in Somalia and in Sweden. Some said that this nausea was more intense in Sweden, resulting in more hospital care than in Somalia. They could not understand the reason for this difference. *'For four months I was vomiting and I still don't understand why. Swedish women never suffer from such vomiting—they are bicycling and driving cars. But here in Sweden I met many Somalian women going to the hospital to be treated intravenously. It's a catastrophe'*; *'Even if I suffered from nausea in Somalia, I could still do what ever I wanted. It is not like that in Sweden'* (Woman C).

Nutrition habits

In order to avoid having a large fetus, and the complications it might bring during labour, many women voluntarily ate less than they did when they were not pregnant. Practically all were familiar with the notion that reduced food intake could make labour easier and thereby reduce the risk of caesarean section. One woman said: *'During pregnancy I ate very little. I was afraid of great ruptures or being delivered by caesarean section'* (Woman D). Another participant said: *'It is not good that the baby grows too much, it will lead to a difficult delivery. I have never thought about circumcision as a problem, but I do want an easy delivery and for that it is good with a small baby'* (Woman E). One of the women, who said that she had eaten the same amount as during normal non pregnant conditions, had previously asked a doctor if this Somalian 'common sense

behaviour' really was beneficial. She was informed that this is not the case. This woman was known as well educated with a 'modern attitude'.

Social network

All women described a difference in motherhood in Sweden as compared with Somalia. Feelings of loneliness and isolation in Sweden were brought on by the absence of support from relatives. *'My husband helped me, but he can't help me in the way my own parents or my mother-in-law could. Here in Sweden I only have my husband, and I have to do everything by myself'* (Woman F). One married woman said *'In Sweden I am so busy and there is only the mother, the children and the father, nobody else'* (Woman D). A new role for Somalian men in Sweden was described. In Sweden the men participate actively during labour, while the traditional role, in Somalia, is one of nonparticipation. The women described this as new and positive experience: *'The best thing is of course if you have your family around during labour. You feel safe. The midwives do not know you, so they do not give you the same attention'* (Woman G). Another said: *'My husband was the only relative I had, so he had to stay with me. I think it was good for him to see me with the pain during labour. I think he will understand better now how difficult it is to give birth'* (Woman H).

Delivery experiences

A majority of the women expressed satisfaction and joy when they became aware of their pregnancy. Parallel to this joy, the women also relayed anxiety and fear regarding the risks inherent in delivery and some said that they had prayed intensely before delivery. Some women expressed the feeling that labour was a condition 'somewhere between life and death': *'The only thing I thought about delivery was fear of dying. I remember my pregnancy in Somalia. I had dinner with a pregnant friend of mine; suddenly she started to feel labour pains and went to the hospital. She and the baby died that day'* (Woman G).

Nearly all the women expressed fear of caesarean section and could easily recall having known someone who had died in childbirth in Somalia. They expressed anxiety of dying due to the potential problems of the next pregnancy, caused by complications in surgery or anaesthesia. A caesarean section is seen as an increase in the risk for suffering in their post delivery life. One participant who had her first caesarean section in Sweden related: *'First I was shocked, I will not survive I thought immediately. Then the doctor talked to me, telling me that it was not dangerous and that I would survive. I did not understand everything and I felt that I had no choice. I was thinking of women in Somalia who did not*

survive. After the operation I felt it was not that difficult' (Woman I). One woman said: 'caesarean section it is a nightmare. I know a woman who did not survive. If you survive, it gives you other problems, you can not get pregnant until two or three years after' (Woman J).

None of the women spontaneously expressed having had any feelings of anxiety about the child's health. One said: 'I want to live, I don't want to die, but if I lose my child I can try again' (Woman K). Another woman who lost her child just after delivery said: 'The child is a gift from God. If anything went wrong during delivery, I would never accuse anyone because we know that no one wants a bad outcome—if something does go wrong, it is God who has decided the child's fate' (Woman A). A third woman related: 'It is God who knows if the pregnancy is going well, we do not know. If the baby kicks, we are not worried' (Woman E).

Genital mutilation

Many women were satisfied with the kind reception they were given by the personnel in the delivery ward. The critical voices expressed feelings of a lack of emotional support and a fear of insufficient knowledge on the part of midwives in handling genitally mutilated women. However, none of the women spontaneously discussed any association between genital mutilation and a bad obstetric outcome. One woman said: 'In our homeland, it is so common with circumcision—all women are circumcised, so no one thinks that anything will happen. When we come to Sweden, we meet people who say that female circumcision causes risks during childbirth, but we don't think so much about it' (Woman L).

DISCUSSION

Major findings

The interviews describe how immigrant women themselves perceived their experiences of pregnancy and childbirth. Many voluntarily decreased food-intake in order to have smaller fetuses, easier delivery and to avoid caesarean section. Suffering from nausea was greater in Sweden than in Somalia and sub optimal verbal communication existed between the woman and the antenatal care staff.

Validity of method

The results from a qualitative investigation can be generalised to the background population with regard to the existence of phenomena, but to a lesser degree with regard to amounts and proportions¹⁶. It is advantageous to have a heterogeneous group, which gives a higher potential for generalisation and findings that seem likely

to be applicable to Somalian immigrants in other societies sharing similar structures. The validity of the results was increased by the close relationship between the interviewer and the participants and, in contrast to many other studies, women with language incompatibility were *not* excluded.

The use of the health care system and communication

Generally all the women had a positive attitude towards the Swedish antenatal and delivery care. In contrast, a common attitude in Somalia was that no surveillance was necessary as long as things appeared to be going well. The women saw the surveillance in Sweden positively. Antenatal care program was seen as a routine check-up, but it was not obviously a forum for discussion of thoughts about pregnancy and its complications. The Somalian women do not seem to benefit from the present antenatal care program in the way intended. Even if antenatal care is free, and the general coverage very high, some immigrant groups might utilise the facilities in a less appropriate way, and with less compliance, due to cultural barriers. This might contribute to adverse perinatal outcome through sub optimal surveillance. Swedish law guarantees women the right to obstetrical anaesthesia and it is the midwife's duty to inform patients of this during pregnancy and labour. However, surprisingly few women could remember any information regarding anaesthesia or regarding medical advice during pregnancy. Part of the explanation for this could stem from sub optimal verbal communication¹⁷. Better use of professional interpreters could improve the communication.

Strategies during pregnancy and childbirth

The increased intensity of hyperemesis, perceived by the women during pregnancy in their new country, could be interpreted partly as a social reaction and as a non verbal way of breaking out of the social isolation these women felt in Sweden. The loss of a social network and its negative effects on pregnancy has been documented in other studies^{12,18}. A biological ethnic difference of hyperemesis in terms of variances in the profile of the hormone human chorionic gonadotrophin isoforms (hCG) is known¹⁹, and it can be hypothesised that Somalian women cope less well with this symptom in a new social situation.

The nutrition strategy of routinely reducing food intake in order to have easier deliveries could be seen as a rational practice, bearing in mind the enormous risk of maternal mortality in Somalia (1·100 per 100·000 live births)²⁰. This self-starvation phenomenon has been described in previous studies from Somalia^{10,11}.

The present study confirms that the practice, when present, continues even after emigration to a country with very advanced obstetric care. This also demonstrates that improving obstetric care is more complicated than simply offering good medical services, it must also take into account the cultural and religious beliefs of the women²¹.

The effect of diet on birthweight seems to be complex. Extremely low caloric intake will result in low birthweight, which is still a problem in low-income countries. However, iatrogenic caloric restriction during pregnancy in high-income countries seems not to affect birthweight²². Few studies have been conducted on women who have migrated from low- to high-income countries, or on caloric restriction during pregnancy and its association to birthweight. The frequency of hyperemesis in combination with self-starvation could, hypothetically, be part of the explanation of the increased risk of small for gestational age infants among Somali immigrants. In a multiethnic population there is a need for further investigation, in order to be better able to distinguish between genetic, placental circulatory or environmental mechanisms regarding intrauterine growth restriction²³.

Amongst the women in the survey there was a widespread fear of being delivered by caesarean section. This resistance was partly based upon the fear of dying. This fear must be interpreted against the background that women in Africa have the highest risk of maternal death due to the fact that the effect of high mortality rates is compounded by the high pregnancy rate²⁰. An interview study on Somali women, who migrated to the USA, showed that they preferred to be delivered by obstetricians who were 'conservative' regarding the decision to perform caesarean section²⁴. The fear of caesarean section could be seen as a survival factor in Somalia. On the other hand, in Sweden the fear could lead women to avoid seeking care when obstetrical problems and caesarean section might occur. This could lead to an increased risk for adverse outcome. Information about the medical reasons for caesarean section and the safety of this procedure in Sweden should be brought up early in antenatal care.

The women interviewed placed a strong trust in God in a pragmatic way. They seemed to give their best effort in childcare, but if the child dies they see it as a predetermined act of God. Not many problems in connection with childcare were brought up spontaneously. Nor did any of the women admit to any fear for the child's health, for example for sudden infant death, a fear that is common among Swedish women. This could be interpreted as an expression that they have a different risk orientation as compared with Swedish women. However, it may be that Somali women do not talk about their anxiety, a possibility brought up during discussion

with one of the participants. The Swedish health care system might not be aware of this, thus leading to the neglect of a potential risk factor, and contributing to adverse perinatal outcome.

Differences in attitude

The women did not associate genital mutilation with an adverse obstetrical outcome. It was not a specific interview topic, therefore no further analysis has been done. Nearly 100% of women in Somalia are genitally mutilated and in a controlled study this was found to be unrelated to adverse obstetrical outcome²⁵. We do not consider the fact that all women were genitally mutilated as an explanation for the strategies described for achieving safe deliveries. Studies from India, where genital mutilation is not practised, have shown the same phenomena of reduced food intake for avoiding caesarean section²⁶. As the tradition of female genital mutilation is so widespread throughout the Somali society, women might not consider their mutilation to be a health problem even when they, by migration, become members of a new society. On the other hand, Swedish health personnel with less knowledge of this tradition might exaggerate the importance of genital mutilation in a labour situation. This might be part of the reason for the high frequency of caesarean section in this immigrant group⁶.

Most of the women describe their new role of motherhood as isolating. In this period in Somalia, a female social network immediately begins taking care of all traditional female home roles¹⁰. Based on the women's comments, it became obvious that these women in Sweden suffered from the absence of this social network, which might contribute to a reduction in their psychosocial resources, known as a pregnancy risk factor.

CONCLUSION

Somali women have different practices, strategies and attitudes regarding pregnancy and childbirth, which should be viewed in the light of their previous life experiences in an environment of high maternal mortality. The women considered a safe delivery the same as a normal vaginal delivery, thus they reduced food intake to limit the growth of the fetus and thereby to avoid caesarean section and mortality. The hypothesis generated by this study is that there is a relationship between the attitudes and strategies during pregnancy and childbirth and the perinatal outcome in a migrant situation (Fig. 1). It seems doubtful whether the women will change their habits, considering it appropriate and while health care providers are unaware of their habits. Our study can be useful in devising perinatal interventions that are more group-specific and culturally sensitive in order to reduce

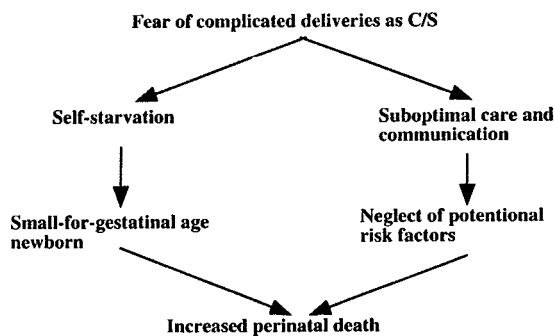


Fig 1. The hypothesis of the relationship between the strategies during pregnancy and adverse perinatal outcome amongst Somali women resident in Sweden.

perinatal mortality and morbidity. Professionals seem to play an important role in supporting the women on a more individual level as does the routine use of interpreters.

Contributors

B.E. originated the idea for the study and together with S.J., was responsible for the study design. S.J. conducted the interviews. The analysis was carried out by B.E. and S.J. in discussions with the multidisciplinary group of Birgitta Hovellius, P.-O. Östergren, Seamundur Gudmundsson, N.-O. Sjöberg and Jonathan Friedman. B.E. wrote the paper after discussions with the other investigators, especially with S.J. and P.O.Ö.

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References

- Bakketeig LS, Hoffman HS, Steinthal PM. Obstetric service and perinatal mortality in Norway. *Acta Obstet Gynecol Scand* 1978; **57** (Suppl 77): 3–19.
- Ruth G. Better perinatal health in Sweden. *Lancet* 1979; **2**: 70–72.
- Smedby B, Ericson A. Perinatal mortality among children of immigrant mothers in Sweden. *Acta Paediatr Scand* 1979; **275** (Suppl): 41–46.
- Rasmussen F, Oldenburg CEM, Eriksson A, Gunnarskog J. Preterm birth and low birth weight among children of Swedish and immigrant women between 1978 and 1990. *Pediatric Perinatal Epidemiol* 1995; **9**: 441–454.
- The Epidemiological Center. *Delivery outcome among Immigrant women in Sweden*, (in Swedish). The National Board of Health and Social Welfare, Stockholm: No 1, 1998.
- Essén B, Lindqvist P, P-O Östergren, Hanson B, Gudmundsson S. Increased perinatal mortality among immigrant women in a city-population in Sweden. *Acta Obstet Gynecol Scand* 2000; **79**: 737–743.
- Sundquist J, Iglesias I, Isacson A. Migration and health. A study of Latin American refugees, their exile in Sweden and repatriation. *Scand J Prim Health Care* 1995; **13**: 135–140.
- Baker DJP. *Fetal and infant origins of adult disease*. London: BMJ Publishing, 1992.
- Emanuel I, Hale CB, Berg CJ. Poor birth outcome of American black women: an alternative explanation. *J Public Health Policy* 1989; **10**: 299–308.
- Omar Mayumuna M. *Womens health in rural Somalia*. Department of Epidemiology and Public Health, Umeå University (Thesis) 1994.
- Kassamali N. When modernity confronts traditional practices: Female genital cutting in Northeast Africa. In: Bodman HL, Tohodi N, editors. *Women in Muslim societies. Diversity within unity*. London: Boulder, 1998: 39–58.
- Dejin-Karlsson E, Hanson BS, Östergren PO, Lindgren A, Sjöberg N-O, Marsál K. Lack of psychosocial resources increases the risk of giving birth to small -for- gestational-age infants. *Br J Obstet Gynaecol* 2000; **107**: 89–100.
- Höjberg U, Wall S, Wiklund DE. Perinatal mortality in a Swedish county 1980–1984. *Acta Obstet Gynecol Scand* 1990; **69**: 567–573.
- Pope C, Mays N. Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *BMJ* 1995; **311**: 42–45.
- Stauss A, Corbin J. *Basic of qualitative research. Grounded Theory. Procedures of and techniques*. Newbury Park: Sage, 1990.
- Kuzel AJ. Sampling in qualitative inquiry. In: Crabtree BF, Miller WL editors. *Doing qualitative research*. London: Sage, 1992.
- Zeitlin J, Combier EDE, Caunes F, Papiernik E. Socio-demographic risk factors for perinatal mortality. a study of perinatal mortality in the French district of Seine-Saint-Denis. *Acta Obstet Gynecol Scand* 1998; **77**: 826–835.
- Shiono PH, Rauh WA, Park M, Ledermann S, Zuskard D. Ethnic differences in birthweight: The role of life style and other factors. *Am J Pub Health* 1997; **87**: 787–793.
- Jordan V, Grebe SK, Coke RR et al. Acidic isoforms of human chorionic gonadotrophin in European and Samoan women are associated with hyperemesis gravidarum and may be thyrotrophic. *Clin Endocrinol* 1999; **50**: 619–627.
- World Health Organization. *Maternal mortality: A global factbook*. Abou Zahr C, Royston E, editors. WHO Genève, Offset Publication; 1991: 217–219.
- Kirby JP. The Islamic dialogue with African traditional religion: Divination and health care. *Soc Sci Med* 1993; **36**: 237–247-37.
- Mathews F, Yudkin P, Niel A. Influence of maternal nutrition on outcome of pregnancy: prospective cohort study. *BMJ* 1999; **319**: 339–343.
- Gardosi J, Chang A, Kalyan B, Sahota D, Symonds EM. Customised antenatal growth charts. *Lancet* 1992; **339**: 283–287.
- Beine K, Fullerton J, Palinkas I, Anders E. Conceptions of prenatal care among Somali women in San Diego. *J Nurse Midwifery* 1995; **40**: 376–381.
- Berardi JD, Teillet JF, Godard J, Lalouz V, Allance P, Franjou MH. Conséquences obstétricales de l'excision féminine [in French]. *J Gynecol Obstet Biol Reprod* 1985; **14**: 743–746.
- Bruun Nielsen B. To deliver a small baby is easy, but to save a small baby is difficult. Community studies on antenatal care in rural Tamil Nadu, South India. (PhD thesis). Faculty of Sciences Aarhus University, Denmark, 1998.

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