STUDY OF FEEDING PRACTICES IN INFANTS ATTENDING PAEDIATRIC DEPARTMENT IN A TERTIARY CARE HOSPITAL

Sindhura Vinnakota¹, Naveen Kumar Mallineni², Y. Asha³, P. Sandeep⁴

¹Medical Officer, Special New Born Care Unit (SNCU), Department of Paediatrics, King George Hospital, Visakhapatnam, Andhra Pradesh, India.

²Civil Assistant Surgeon, Department of Plastic Surgery, Visakha Institute of Medical Sciences (VIMS), Visakhapatnam, Andhra Pradesh, India.

³Consultant Paediatrician, Department of Paediatrics, Amma Children Hospital, Ongole, Andhra Pradesh, India.

⁴Assistant Professor, Department of Paediatrics, RIMS, Srikakulam, Andhra Pradesh, India.

ABSTRACT

BACKGROUND

Optimum nutrition is essential for child survival and quality of survival. As per global public health recommendations, infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to two years of age or beyond⁴. Infant feeding and rearing practices have a major effect on short term and long-term nutritional status of infants. Present study is undertaken to assess the current feeding practices in infants attending paediatrics department in a tertiary care hospital.

METHODS

Present study is a cross sectional study in which about 500 Mothers and their infants attending paediatric OPD, postnatal ward, paediatric ward of KGH for various reasons of health care, were selected for study. Statistical analysis was done using Epi Info 7.1.2.0 of Centre for Disease Control, USA and MedCalc 12.7.5 Belgium.

RESULTS

The median age of mothers in the study is 22 years in which about 54.4% were illiterate and 81% were house wives. Breast feeding suggestion during ANC to mothers by doctors is 79%. 11.2% children were given prelacteal feeds. Exclusive breast feeding was done by mothers in 88%. When the mothers knowledge regarding the age of initiation of complimentary feeding is obtained, 2.2% of mothers thought complimentary feeding can be started when the child was between 2 to 3 months age, 9.8% felt that it can be started between 3 to 4 months of age; 15% felt 4-5 months, about 23% felt 5 to 6 months, 29.4% felt 6 to 7 months, 21% felt that it can be started > 7 months of age.

CONCLUSIONS

There is a need to improve health education regarding infant feeding practices like exclusive breast feeding and weaning. Problems during breast feeding should be taught during pregnancy. Counselling should be started antenatally to improve confidence in mothers and to identify problems like inverted nipple. Breast feeding and weaning are two major pillars in infant feeding which should be done appropriately to reduce infant morbidity and mortality.

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BACKGROUND

Optimum nutrition is essential for child survival and quality of survival. Breast milk is the natural food for the infant and it is species specific.¹ "The nature has designed the provision that infants be fed upon their mother's milk. They find their food and mother at the same time. It is complete nourishment for them, both for their body and soul."²

Breastfeeding is an unequalled way of providing ideal food for the healthy growth and development of infants; it is also an integral part of the reproductive process with important implications for the health of mother.³

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Corresponding Author:

Dr. Naveen Kumar Mallineni,
Flat No. 102, ELRS Residency,
Beside Vaishnavi Hospital, Krishna Nagar,
Visakhapatnam-530002,
Andhra Pradesh, India.

E-mail: naveen.mallineni@gmail.com

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As a global public health recommendation, infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to two years of age or beyond.⁴

Infant feeding and rearing practices have a major effect on short term and long-term nutritional status of infants and vary from country to country and even place to place in a given country. In our country, breastfeeding has been the traditional way of feeding the newborn and is usually prolonged, leading to a delay in weaning and compromise of nutritional status of the infant.⁵

Present study is undertaken to assess the current feeding practices in infants attending paediatrics department in a tertiary care hospital.

Aims and Objectives

1. To find out the prevailing feeding practices in infants attending tertiary care hospital.

- To identify the problems affecting infant feeding practices.
- To analyze the factors that are influencing the mothers, families and Care givers in infant feeding.
- To assess the knowledge regarding the feeding practices.

METHODS

Study Design

Present study is a cross sectional study.

Study Period

From October 2014 to July 2015 with a total period of 10 months.

Study Setting

Study was conducted at KGH Visakhapatnam.

Study Population

Mothers and their infants attending Paediatric OPD, postnatal ward, paediatric ward of KGH for various reasons of health care.

Inclusion Criteria

Mothers of infants from 0 to 1 year will be included.

Exclusion Criteria

Mothers with psychiatric illness.

Sample Size

500 Mothers.

Methodology

Informed consent is taken. Information about the knowledge and practices is collected through structured questions. Data are entered into a form designed for the purpose and converted into electronic database using ms excel.

Statistical Analysis

Statistical analysis was done using Epi info 7.1.2.0 of Centre for Disease Control, USA and MedCalc 12.7.5 Belgium.

RESULTS

The median age of the infants studied 118.5 days (95 % CI: 83 to 142.4 days) with a range from 5 to 353 days.

Sex Distribution of Children

Out of 500 infants studied 58.2% are females and 41.8% are males. The female children (95% CI: 53.73% to 62.54%) are significantly more than the males (95% CI: 37.46% to 46.27%).

The median age of mothers in the study (n=500) is 22 years (95% CI: 22 to 23 years). The mean age of mothers is 22.6 ± 11.7 years. The range is 16 years (youngest mothers) to 39 years (eldest mothers).

Significant proportion of mothers 54.4% (95% CI: 50% to 59%) are illiterates. Mothers with high school level education are 21% (95% CI: 17.6% to 25%).

Significant number of mothers' occupation is house wife 81% (95% CI: 77% to 84%). Only 13% of the mothers are manual labourers and 6.2% are office work.

The mothers studied belong to Hindu, Muslim, Christian religions in a proportion of 72.4%, 22.8%, 4.8% respectively.

Most of the mothers 70.4% (95% CI: 66% to 74%) belong to joint family and 29.6 % (95% CI: 25% to 34%) belong to nuclear families.

Out of 500 mothers only 24.8 % (95% CI: 21% to 29%) mothers had more than 3 antenatal check-ups. The minimum number of 3 antenatal check-ups were taken by only 32% of mothers (95% CI: 27% to 36%). 41.78% (95% CI: 37.41% to 46.29%) of mothers received only 2 antenatal check-ups and 1.62% mothers received only one antenatal check-up.

During antenatal check-ups 71.2% (95% CI: 66.94% to 75.11%) of mothers do not received suggestion for breast feeding during ANC. Whereas 28.8% (95% CI: 24.9% to 33%) received suggestion during ANC.

Breast feeding suggestion during ANC to mothers by doctors is 79% (95% CI: 71.2% to 85.3%), in 16.2% of mothers (95% CI: 10.6% to 23.3%) the breast-feeding suggestion was given by nurse, in 5% (95% CI: 2% to 10%) given by ANM.

In 89% of children (88.8%, 95% CI: 85.62% to 91.36%) prelacteal feeds were not given and 11.2% (95% CI: 8.64% to 14.38%) children were given prelacteal feeds.

Out of 56 babies who received prelacteal feeds 44.64% (95% CI: 31.34% to 58.53%) received sugar water, 25% (95% CI: 14.39% to 38.37%) received top fed milk, 19.64% (95% CI: 10.23% to 32.43%) received honey and 10.7% (95% CI: 4.03% to 21.88%) received glucose water.

In 39.4% of children (95% CI - 35.12% to 43.85%) initiated breast feeding within one hour. 36.2% of children (95% CI - 32.01% to 40.60%) initiated breast feeding in 1-4

hours after delivery. 12.6% (95% CI - 9.88% to 15.91%) children received breast milk 24 hours after delivery.

Among 500 mothers studied 454 mothers fed colostrum to their children, 91% (95% CI -87.83% to 93.12%) In comparison to only 9.2% of mothers (95% CI - 6.88% to 12.17%) who did not feed colostrum to babies.

Out of 46 mothers who did not feed their babies with colostrum most of them 56.5% (95% CI: 41.1% to 71%) did not feed colostrum as they were advised by grandmothers, due to custom & tradition 24% (95% CI: 12.59% to 38.77%) and about 20% (95% CI: 9.36% to 33.9%) thinking that colostrum is not suitable for baby health.

Exclusive breast feeding was done by mothers in 88% (95% CI: 85% to 91%) of children. In 6.4% children (95% CI: 4.49% to 9%) predominant breast feeding. In 5.6% (95% CI: 3.8% to 8%) partial breast feeding was implemented. Over all 12% children are not getting the benefit of exclusive breast feeding.

Graph Showing Breast Feeding Type

Exclusive Breast-Feeding Knowledge	Frequency	Percent	95% Confidence Limits	
1 Month	5	1.14%	0.42%	2.79%
2 Months	3	0.68%	0.18%	2.15%
3 Months	15	3.41%	1.99%	5.69%
4 Months	135	30.68%	26.45%	35.26%
5 Months	70	15.91%	12.69%	19.74%
6 Months	156	35.45%	31.02%	40.15%
>6 Months	56	12.73%	9.83%	16.29%
Total	440	100.00%		
Exclusive Breast-Feeding Duration- Knowledge				

Out of 440 mothers who gave exclusive breast feeding of some duration 35.5% (95% CI: 31% to 40%) of mothers have correct knowledge of exclusive breast feeding. Among the rest of mothers 16% (95% CI: 12.69% to 19.7%) think exclusive breast feeding is of 5 months. 31% (95% CI: 26.45% to 35.2%) think exclusive breast feeding of 4 months duration. 3.4 % (95% CI: 2% to 5.7%) think it is 3 months duration. 0.7 % (95% CI: 0.18% to 2.1%) think it is 2 months duration. Approximately 13% (95% CI: 9.8% to 16.3%) mothers felt exclusive breast feeding is of >6 months duration.

Out of 500 mothers when information was sought about duration of each breast feeding session most of mothers 72.2 % (95% CI: 68% to 76%) breastfed their babies for 5-10 minutes, 19% (95% CI: 15.7% to 22.7%) for 10-15 minutes, 5.6% (95% CI: 3.8% to 8%) for < 5 minutes, 3.2% (95% CI: 2% to 5.2%) for 15-20 minutes.

Pattern of Breast Feeding	Frequency	Percent	95% Confidence Limits	
Clockwise	8	1.60%	0.75%	3.26%
Demand Feeding	492	98.40%	96.74%	99.25%
Total	500	100.00%		
Practice of Breast-Feeding Pattern				

As regards to exclusive breast-feeding patterns most of the mothers (98.4%, 95% CI: 96.74% to 99.25%) are giving demand feeding. Only 1.6% followed a time schedule.

Regarding the lactation promotion method 58.4% (95% CI: 53.93% to 62.74%) mothers have chosen diet as a method of promoting breast milk production, more frequent breast feeding is opted by 25% (95% CI: 21.31% to 29%) of mothers, 11.2% (95% CI: 8.64% to 14.38%) felt that minimal physical activity (rest) will promote and 5.4% felt that some medicine will promote lactation.

45% (95% CI - 40.6 to 49.48%) of mothers felt that vegetarian diet promotes lactation, about 42% (95% CI - 37.26 to 46%) do not feel that any particular diet is needed for lactation promotion. 13.4% (95% CI -10.6 to 16.78%) prefer non vegetarian diet

Out of 500 mothers 76.4% (95% CI - 72.3% to 79.6%) feel that breast feeding can be continued during maternal illness. Whereas 23% (95% CI - 20% to 27.6%) think that breast feeding should not be given during maternal illness.

Among the mothers studied 91% (95% CI - 87.6% to 93%) feel that breast feeding can be continued even during baby's illness. In 9.4% (95% CI - 7% to 12.4%) think that breastfeeding should not be given during baby's illness.

Out of 31 mothers who started top feeds 64.5%(95% CI - 45.3% to 81%) mothers gave top feeds due to insufficient mother's milk, in about 13%(95% CI - 3.6% to 30%) mothers are working, in 9.7% (95% CI - 2% to 25%) due to advise given by grandmothers, in 6.45% (95% CI - 0.8% to 21%) it is due to maternal illness and in another 6.45% it is due to subsequent pregnancy.

In group of mothers who gave top feed 61.3% (95% CI: 42% to 78%) gave buffalo milk, about 26% (95% CI: 11.8% to 44%) formula feeds, 9.7% (95% CI: 2% to 25%) cow's milk and 3.2% (95% CI: 0.08% to 16%) goats milk.

Top feeding method are by bottle in 74% (95% CI: 55% to 88%), by Paladai 22.6% (95% CI: 9.5% to 41%) and in 3.23% (95% CI: 0.08% to 16%) with spoon.

When the mothers knowledge regarding the age of initiation of complimentary feeding is obtained 2.2% (95% CI: 1.1% to 4%) of mothers thought complimentary feeding has to be started between 2 to 3 months age of the child 9.8% (95% CI: 7.4% to 12.8%) felt it between 3 to 4 months, 15% (95% CI: 12% to 18%) felt at 4-5 months, about 23% (95% CI: 19% to 26.5%) felt it between 5 to 6 months, in 29.4% (95% CI: 25.4% to 33.6%) it is 6 to 7 months, > 7 months it is 21% (95% CI: 17.5% to 25%)

Complimentary feeding pattern in 68.2% (95% CI: 62% to 74%) is time wise schedule and in about 32% (95% CI: 26% to 38%) as per the demand of the child.

The type of complimentary feed initially started could be evaluated in 233 children. In 46% (95% CI: 39% to 52%) it is rice dhal in 40.34% (95% CI: 34% to 47%) it is Cerelac. In about 7% (95% CI: 4% to 11%) other homemade diet, in 4.7% (95% CI: 3% to 8%) it is biscuits and in 2.2% (95% CI: 0.7% to 5%) it is fruit juice.

In 46 babies complimentary feed introduced after 7 months of age, out of which 61% (95% CI: 45% to 75%) delayed as the mother felt that breast milk was sufficient for the baby and In 39.1% (95% CI: 25% to 54.6%) the delay in complimentary feed is due to opinion of the mother that complimentary feed may cause diarrhoea or not digestible to the baby.

DISCUSSION

		Present Study 2014-15	Syed E Mahmood 2012 ⁶	Abhay Shivaram Bagul 2011 ⁷	Maheswari Ekambaram 2010 ⁸	Sima Roy, 2009 ⁹	Apurupa Sinhababu 2008 ¹⁰	Nitin Joseph 2004 ¹¹	Arun Gupta, 2003 ¹²
Number		500	123	384	100 (Postnatal Mothers)	120 (6 Months-2 yrs.)	324	194	8953 (0-9 Months)
Baby Age		Median Age 118.5 Days (95% CI- 83 to 142.4)	-	-	-	-	-	-	-
Baby Sex	M F	41.8% 58.2%	-	-	-	-	46.6% 53.4%	-	54.6% 45.4%
Mother Age		Median: 22 (95% CI- 22 to 23 Years) <20 Yrs.- 18% 20 to 29 - 79.4% >30- 2.6%	18 to 23- 39.8% 24 to 29- 38.3% >30-21.9%	-	18 to 35 Average- 25.18 Years ±3.81 Years	-	-	-	Up to 20- 17.7% 21 to 25- 44.8% >25-37.5%
Mother Education	Illiterate Literate	54.4% 45.6%	69.9% 30.1%	19.73% 80.27%	15% 75%	18.4% 81.6%	-	-	30.4% 69.6%
Occupation	Housewife Working	80.8% 19.2%	99.1% 0.9%	28.94% 71.06%	67% 33%	69.1% 30.9%	-	-	81.7% 18.3%
Type of Family	Joint Nuclear	70.4% 29.6%	46.6% 54.4%	-	53% 47%	34.1% 65.9%	-	-	-
ANC	Yes No	98.6% 1.4%	-	-	97% 3%	-	-	-	-
ANC Provider	Doctor ANM TBA others	95.54% 3.45% 0.41% 0.61%	-	-	-	-	-	-	-
ANC Place	Home PHC/CHC Govt. Hosp Clinic Pvt. Hosp	1.01% 9.33% 36.92% 8.52% 44.22%	-	-	-	-	-	-	-
NO. of ANC	<3 3 or Above	43.4% 56.6%	75.6% 24.4%	-	-	-	-	-	-

BF Suggestion During ANC	Yes No	28.8% 71.2%	30.1% 69.9%	-	17% 83%	-	-	-	-
BF Suggestion by Whom	ANM Nurse Doctor	4.93% 16.2% 78.87%	-	-	-	-	-	-	-
Birth Place	Home Hospital	5.8% 94.2%	49.6% 51.4%	17.1% 82.9%	-	6.67% 93.3%	-	25%	-
Prelacteal		11.2% 88.8%	22.76% 77.24%	78.61% 21.39%		29.16% 70.84%	27.4% 72.6%	33.5% 66.5%	49.2% 50.8%
Type of Prelacteal	Sugar Water	44.64%	-	-	-	-	-	63.1%	20%
BF Initiation	<1 Hr. 1-24 Hrs. >24 Hrs.	39.4% 48% 12.6%	22% 57% 21%	32.56% 61.85% 5.59%	-	16.67% 60% 23.33%	-	-	28%
Colostrum	Yes No	90.8% 9.2%	84.6% 15.4%	21.38% 78.61%	-	90% 10%	-	-	-
Colostrum Not Given	Not Good for Baby	19.57%	52.7%	-	-	-	-	-	-
BF Type	Exclusive BF Predominant Partial BF	88% 6.4% 4.6%	77.24%	-	-	-	-	-	39.68% 11.3% 49.02%
EBF Up To 6 Months Knowledge	-	35.45%	-	-	38%	-	-	-	-
EBF up to 4 to 6 Months Actual Duration	-	69.3%	-	36.84%	-	28.33%	-	41.7%	39.7%
BF Pattern	Demand Clockwise	98.4% 1.6%	-	-	-	-	-	87.1% 12.9%	-
Complimentary Feeding Age of Initiation	<6 Months >6 Months	58.8% 41.2%	24.4%	-	-	71.66%	-	-	70%
BF During Illness of Mother	Yes No	76.4%	-	-	50%	-	-	-	-
Comparison of Studies									

Comparison with other studies done.

The median age of mothers is 22 years (95% CI: 22 to 23 years). In Maheswari Ekambaram's study the average age of the mothers is 25.18± 3.81 years. In our study most of the mothers belong to 20 to 29 years. In Syed Mahmood's study young mothers less than 20 years are also high in number. In our study young mothers less than 20 years are 18% which is very similar to Arun Gupta study (17.7%).

Illiterate mothers in our study are 54.4% (95% CI: 49.92 to 58.81%). In Arun Gupta's study the sample of mothers' representative of 25 different states in India. In their study the illiterate mothers are 30.4% and, in our study, illiterate mothers are 54.4%. It indicates that maternal illiteracy in our population is greater than average maternal illiteracy in India. In Syed Mahmood's study illiterate mothers are high (70%).

Most of the mothers in our study are house wives (80.8%, 95% CI: 77% to 84%). The proportion of house wives in our study, Arun Gupta's study, Maheswari Ekambaram's study and Sima Roy's study are more or less similar. In syed Mahmood's study the proportion of house wives is very high. In Abhay Shivaram Bagulu's study the proportion of house wives is very low.

The median age of infants in our study is around 4 months (95% CI: 83 to 142.4 days, range from 5 days to 12 months). In our study female children are significantly more

(58.2%, 95% CI: 53.73% to 62.54%). In Apurba Sinha babu's study also females are more. But in Arun Gupta's study males are preponderant.

In our study joint families are significantly more (70.4%, 95% CI: 66.2 to 74.3%) than nuclear families (29.6%, 95% CI: 25.67% to 33.85%). In Syed Mohmood's study, Maheswari Ekambaram's study and Sima Roy's study (46.6%, 53% and 34.1% respectively) joint family proportion is low. Where ever joint family system is common, the chances for promotion of breast feeding will be better. In Arun Gupta's study the proportion of exclusive breast feeding is 39.68% and in Syed Mohmood's study it is 77.2%.

Mothers who received antenatal checkups in our study are 88.6% (95% CI: 97 to 99.4%). In our study antenatal checkups of 3 and above are of 56.6% which is higher than that found in Syed Mohmood's study (24.4%). Most of the mothers in our study received antenatal checkups by a doctor (95% CI: 93.2 to 97.1%). This indicates a positive trend in the society where-in the pregnant women are receiving better antenatal checkups more often by qualified and trained healthcare personnel. Significant proportions of pregnant women are receiving antenatal checkups in a hospital setting higher than primary care facility. But there is no significant difference between government and private hospitals.

In our study and others' studies (Syed Mohmood and Maheswari Ekambaram study) the mothers who received

breast feeding suggestion during antenatal checkups is low. In our study the proportion of mothers who delivered in hospital are high (94.2%), similar to others' observations (82.9% in Abhay Shivaram's study and 93.33% in Sima Roy's study), but in Syed Mohmood's study (51.4%) proportion is low.

The proportion of mothers who gave prelacteal feeds is low in our study when compared to other studies.

The optimum initiation time of breast feeding is less than 1 hour after birth. Though this proportion is less in our study and needs improvement by health education, is still better than the observations by others. In other studies, the initiation of breast feeding in less than 1 hour after birth is 16.67% (in Sima Roy's Study) and 32.5% (in Abhay Shivaram's Study).

In our study most of the mothers fed colostrum to their babies (91%, 95% CI: 87.8% to 93.1%). Our observations are similar to that of Sima Roy's (90%) and Syed Mohmood's study (84.6%). In Shivaram's study the colostrum feeding proportion is very low

In Syed Mohmood's study exclusive breast-feeding proportion is 77.24% and in Arun Gupta's study 39.68%. Exclusive breast-feeding proportion up to 6 months in our study is 24.75% which needs improvement by optimum health education strategies. Exclusive breast-feeding duration up to 4 to 6 months in our study is 69.3%. But there is a drop in the proportion of mothers who exclusively breastfed their children up to 6 months (25.75%).

Most of the mothers in our study (98.4%) breast fed their children on demand which is similar to the observation by Nithin Joseph's (87.1%)

In our study 76.4% of mothers have the knowledge that breast feeding can be continued during maternal illness. In Maheswari Ekambaram's study 50% of mothers have such knowledge. In our study 15.6% of the mothers have the incorrect knowledge that breast milk secretion can be promoted by rest and medications. Though the proportion of mothers who think lactation can be promoted by medication and rest is small, can still be further educated correctly. In our study 58.4% of mothers prefer either vegetarian or non-vegetarian diet for lactation promotion which is indicative of inappropriate knowledge.

In our study significant number of mothers did not give any top feed during the period of exclusive breast feeding. The proportion of mothers who gave top feeds is very small (6.2%, 95% CI: 4.3% to 8.78%) in our observation.

In our observation nearly 60% of mothers introduced complimentary feeding below 6 months age of the children. In Syed Mohmood's study the proportion is smaller (24.4%). This may be due to the mothers feeling inappropriately that complimentary feeds are required below 6 months. This needs to be corrected by proper health education.

Only 29.4% of mothers (95% CI: 25.4% to 33.6%) are having correct knowledge regarding age of starting of complementary feeds. About 49.6% mothers think that complementary feeding has to be started before 6 months of the age of the child. About 21% of mothers think complementary feeding has to be started from 7 months and above. This indicates that overall 70.6% of mothers are having incorrect knowledge regarding age of initiation of complementary feeding and this aspect needs proper health education strategies.

Nearly 45% of the mothers are giving inappropriate complementary feed (Biscuits and Cerelac) to their children. From the nutritional and financial point of view this needs to be corrected by appropriate health education.

Significant proportion of mothers (68.24%, 95% CI: 61.84% to 74.17%) are following clockwise timetable pattern while giving complementary feeds instead of the desirable biological clock method (demand feeding).

Nearly 20% of mothers delayed the initiation of complementary feeding. Out of them nearly 61% mothers feel that breast feeding is still adequate, and 39% mothers feel that complementary feeding is not digestible. This also needs correction by proper health education.

CONCLUSIONS

There is a need to improve health education regarding infant feeding practices like exclusive breast feeding and weaning. Expecting mothers should be taught about problems during breast feeding during pregnancy. Counselling should be started antenatally to improve confidence in mothers and to find out problems like inverted nipple. Breast feeding and weaning are two major pillars in infant feeding which should be done appropriately to reduce infant morbidity and mortality.

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