

Enhancing Infant Feeding Practices through Nutrition Behaviour Change Communication among Mothers in Marsabit County, Kenya

Rufo Liban^{1} Job Mapesa¹ and Charles Wafula²*

¹ Kenya Methodist University P.O Box 267, 60200, Meru, Kenya

² Tropical Institute of Community Health and Development (TICH), Great Lakes University of Kisumu (GLUK)

* Corresponding Author email address: rufoliban25@gmail.com

Abstract

Adherence to proper feeding practices for infants and young children has proven to significantly decrease instances of malnutrition in countries with lower to middle incomes. Despite this, little is known about the impact of behaviour change communication on infant feeding practices, specifically in Marsabit County. The objective of this study was to investigate how adherence to nutrition behaviour change communication affects the way mothers feed their infants and young children. Using a cross-sectional descriptive survey design, data was collected from four sub-counties in Marsabit County. The sample included 316 participants who were mothers or caregivers of children <5 years from the total target population. The sample was obtained using cluster sampling and simple random sampling techniques. Close ended questionnaires were used to collect data. The data was analysed using descriptive and chi-square statistics with the SPSS v25. Around 46% of the participants had received primary school level education. Majority of the mothers were between 21 to 30 years (50.9%), and 86.1% were married. Individualized counseling sessions (84.5%) and household outreaches (81.6%) were the most frequently employed interpersonal counseling and communication approaches. Group-oriented methods such as social networks (86.2%) and group education (95.1%) proved most effective in promoting proper feeding practices for infants and young children ($p < 0.05$). There were no significant associations ($p > 0.05$) between interpersonal counseling and communication strategies and socio-demographic factors like age, education, marital status, and place of birth. Group-based approaches were notably influenced by education ($p = 0.03$) and place of birth ($p = 0.02$). The community's acceptance of infant and young child feeding practices via both interpersonal counseling and communication and group-based counseling approaches have been implemented by the Marsabit County Government. However, this achievement has not translated into the anticipated improvement in nutrition outcomes or the reduction of malnutrition in Marsabit as anticipated.

Keywords: *Child feeding, Infant feeding practices, Nutrition behavior change communication, Complementary feeding, Nutritional education, Marsabit County*

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1.0 Introduction

Child feeding involves providing a child with breast milk up to six months after birth, and thereafter offering appropriate complementary feeding that assures a balance diet for their optimal growth (Demilew et al., 2021). Feeding practices have significant impact on the life of a child in the pastoralist dominated region like Marsabit in Kenya. Like any other behavioural inclination, feeding practices are a set of complex individual, economic, cultural and social variables which influence the nutritional status of children. For a child's growth and development, proper feeding habits are crucial. However, child malnutrition has been connected to inadequate and improper supplemental meals, poor nutrition understanding, and poor feeding practices by mothers and caregivers. A study carried out in China by Guldan et al. (2018) found out that nutrition education boosted newborn feeding practices and increased infant development. In Zimbabwe, counseling enhanced the use of complementary meals such beans, fruits, green leafy vegetables, and peanut butter in porridges and sauces (Muti et al., 2020). Additionally, a participatory nutrition education intervention in Malawi was associated with a 25% adoption rate for making enriched porridges, and 10% for making soaked, pounded maize as complementary food (Hotz & Gibson, 2015).

According to Kilaru et al. (2017), improved supplementary dietary diversity, improved feeding frequency, and suitable

complementary meals are all linked to nutrition education. This is particularly accurate because improvements in child eating and nutritional health have been connected to nutrition education (Salehi et al., 2019). For instance, monthly nutrition instruction provided by locally qualified counselors in Karnataka, India, boosted dietary variety and feeding frequency in a controlled experiment (Kilaru et al., 2017). Santos et al. (2021) indicate that in a community-based responsive feeding program in Bangladesh, mothers in the intervention group gave their children more vegetables and spontaneously recalled more feeding messages in a 5-month follow-up than those in the non-intervention group. Infant and early child feeding habits are among the behaviors that interpersonal therapy has long been proven to assist in child feeding (Lutter et al., 2017). Individual and group therapy increases exclusive breastfeeding and has some favorable impacts on supplemental feeding behaviors (Bhutta et al., 2018). The County of Marsabit rolled out programs that aim to sustain behavior change in order to improve nutrition status for the children (Demilew et al., 2021). Therefore, BCC approaches to education could be used to prevent malnutrition in Marsabit County through inclusion of available foods in a wide dietary diversity.

As per the 2019 Kenya Demographic and Health Survey, over 26% of children below the age of five experience malnutrition, stunting, or exhibit insufficient height relative to their age. This has consequences for the individual child, the society and the

economy at large. The situation is worse in Marsabit County, where child feeding is complicated by harsh environmental context of recurrent droughts, which have recently become intermittent and alarming. This situation raises the need to educate mothers on the adoption of IYCF through SBCC programmes using locally available foods in order to improve MICN. The County has experienced two consecutive season failures in 2018 and 2019. This has greatly affected the nutrition status of the County. Global acute malnutrition (GAM) in Marsabit is at 18%, which is classified as critical according to WHO-UNICEF (2019). classification thresholds. Further disparities are observed across sub counties (Northhor-25%, Moyale-9%, Saku-9.5%, Laisamis-30%) and thus there was the need to assess the effectiveness of SBCC strategies that are employed in the child-feeding training, and in communicating infant and young child-feeding practices among mothers with infants in the county. The main objective of the study was to examine the effect of SBCC training and communication strategies on adoption of infant feeding practices among mothers in Marsabit County, Kenya.

“ In Zimbabwe, counselling enhanced the use of complementary meals such as beans, fruits, green leafy vegetables and peanuts butter in porridae and sauses’

2.0 Materials and Methods

The study was cross a sectional descriptive survey study and data was collected from selected households within 4 sub-counties of Marsabit which lie within the coordinates 2° 20' 7.7892" N and 37° 59' 39.642" E. The target study population 20 000 mothers/primary care givers of children below 5 years in Marsabit County around (KDHS, 2019). A random sample of 316 mother/caregivers was obtained for this study. Both cluster sampling and simple random sampling techniques were used to enumerate the study populace. The researcher collected data using close ended questionnaires. and face-to-face interview with mothers or the primary caregivers of infants. The data was analyzed using the SPSS version 25. The distributions of the main research variables and demographic factors were examined using descriptive statistics. Bivariate correlations and the Chi Square test for association were the main inferential statistics employed in the investigation. The study was approved by the Kenya Methodist University scientific and ethics review committee (KeMU/SERC/HSM/21/2022) and the National Council for Science and Technology Innovations in Kenya, permit No. NACOSTI/P/22/18010.

3.0 Results and Discussions

A total of 316 respondents out of anticipated 377 mother-child pairs participated in the study, giving a response rate of 83.4%. Table 1 shows the socio-demographic characteristics of respondents.

Table 1

Socio-demographic Characteristics of Respondents

Characteristics	n (316)	Frequency (%)
Age (Years)	< 20	41 (13.0)
	21-30	161 (50.9)
	31-40	55 (17.4)
	41-50	36 (11.4)
	> 50	23 (7.3)
Marital Status	Single	35 (11.1)
	Married	258 (81.6)
	Divorced/Separated	20 (6.3)
	Widowed	3 (0.9)
Education level	No formal education	31 (9.8)
	primary level	146 (46.2)
	Secondary level	124 (39.2)
	College level	15 (4.7)
Occupation Status	Unemployed	138 (43.7)
	Self-employed	132 (41.8)
	Employed	46 (14.6)
Monthly Income (KES)	< 10,000	126 (39.9)
	10,001- 20,000	137 (43.4)
	>20,000	53 (16.8)

Results in Table 1 show that a majority (50.9%) of the respondents were aged between 21-30 years, indicating that most mothers are youthful and are probably responsive to health campaign messaging in the community. Majority are married (81.6%) and those who are single accounted for 11.1%. 46.2% of the respondents have primary level education, while (39.2%) have secondary level education. Only 9.8% had no formal education. This indicates a moderate level of literacy. Those unemployed formed

the majority (43.7%) , while 41.8% indicated that they were self-employed, with a small proportion (14.6%) being in formal employment; indicating that the source of income was not guaranteed for most participants in this study.

Role of Interpersonal Communication and Counselling Approaches

Table 2 presents findings on the Role of Interpersonal Communication and Counselling Approaches

Table 2

Interpersonal Communication/ Counselling Approaches

Interpersonal Communication/ Counselling Approaches at the facility		Individual		
		Counselling Sessions	Household Outreach	Peer Education
Child Breastfeeding	Yes	189 (85.9)	68 (89.5)	18 (90)
	No	21(9.5)	5 (6.6)	2 (10)
	Partially	10 (4.5)	3 (3.9)	0 (0)
First time to put your child on the breast	Immediately	83 (38.1)	25 (32.9)	4 (20)
	Within 1 st hour of birth	93 (42.7)	31 (40.8)	11(55)
	Within the 1 st day	37 (17)	15 (19.7)	5(25)
Child given colostrum in the first three days after delivery	Within the 2 nd day	5 (2.3)	5 (6.6)	0 (0)
	Yes	186 (84.5)	62 (81.6)	12 (60)
	No	15 (6.8)	12 (15.8)	5 (25)
Complementary feeding in the first (1 st) three days	Don't know	19 (8.6)	2 (2.6)	3 (15)
	Yes	4 (1.8)	1(1.3)	0 (0)
	No	216 (98.2)	75 (98.7)	20 (100)
Age of introducing liquids/ fluids to the child	0-1 month	8 (3.6)	1(1.3)	0 (0)
	2-3 months	25 (11.4)	6 (7.9)	3 (15)
	4-5 months	89 (40.5)	37(48.7)	12 (60)
	6 months and older	98 (44.5)	32 (42.1)	5 (25)

Table 2 indicates that both approaches are effective in breastfeeding messaging for individualized counselling sessions (84.5%), household outreach (81.6%) and peer education (90%). However, for the practice of introducing the infant to the breast for the first time, all the interpersonal communication approaches, including individualized counselling (38.1%),

household outreach (32.9%) and peer education (20%) were poor. Complementary feeding practices are well embraced as most of the mothers had not introduced complementary foods in the first three days. Table 3 provides analysis of the relationship between the use of ICC strategies for training and conveying infant and young children feeding practices in Marsabit County.

Table 3

The relationship between Interpersonal Counselling/ Communication Strategies and Sociodemographic Data

	<i>Counselled with Interpersonal Counselling/ Communication Strategies</i>		Chi- Square	P value
	Yes (%)	No (%)		

Age (Years)	< 20	38 (92.7)	3 (7.3)	1.696	0.791
	21-30	142(88.2)	19(11.8)		
	31-40	49 (89.1)	6 (10.9)		
	41-50	30 (83.3)	6 (16.7)		
	> 50	20 (87.0)	3 (13)		
Marital status	Single	28 (80.0)	7 (20)	2.965	0.397
	Married	230(89.1)	28(10.9)		
	Divorced/Separated/ Widowed	21 (91.3)	2 (9.7)		
Education level	No formal education	29 (93.5)	2 (6.5)	8.849	0.078
	primary level	125(85.6)	21(14.4)		
	Secondary level	125(89.9)	14(10.1)		
Occupation	Unemployed	120 (87)	18 (13)	0.424	0.809
	Self-employed	118(89.4)	14(10.6)		
	Employed	41(89.1)	5 (10.9)		
Parity	One	108(85.7)	18(14.3)	1.774	0.412
	Two	122(89.1)	15(10.9)		
	Three	49 (92.5)	4 (7.5)		
Place of birth	Health facility	206 (88)	28 (12)	2.810	0.058
	Home	73 (89)	9 (11)		
Household main source of income	Agriculture	30 (90.9)	3 (9.1)	14.086	0.394
	Livestock Farming	62 (91.2)	6 (8.8)		
	Salaried employment	65 (82.3)	14(17.7)		
	Casual work	87 (88.8)	11(11.2)		
	Self-employed	35 (92.1)	3 (7.9)		

Among those aged 21-30, 88.2% agreed to utilizing ICC strategies, while 89.1% of the married participants endorsed its usage. Primarily, individuals with a primary level of education (85.6%) and those with secondary education (88.7%) acknowledged application of ICC's in the county ($\chi^2=8.84$, $p=0.078$). Most (87%) were of the unemployed, and 89.4% of the self-employed favoured ICC adoption. 88% of those who gave birth in health facilities supported use of ICC for birthing ($\chi^2=2.8$, $p=0.058$).

Among the interpersonal counseling/communication strategies applied for infant and young children feeding,

education level ($\chi^2=8.84$, $p=0.078$) and place of birth ($\chi^2=2.8$, $p=0.058$) emerged as significant factors ($p<0.1$). No noteworthy correlations ($p>0.1$) were observed between ICC strategies and socio-demographic factors, including age, marital status, education, occupation, parity, and household income source. These findings agree with Wilner et al. (2019) who employed both interpersonal and group-based approaches. The study corroborates findings by Ickes et al. (2020) that caregiver education by trained healthcare workers lead to improved child feeding knowledge. Behavior change interventions, like ICC, were found to be

effective for complementary feeding, resonating with Shi and Zhang (2019). Further, the study agrees with Warren et al. (2020) who demonstrates that various SBCC approaches, including interpersonal counseling, effectively mitigate child malnutrition. This finding also aligns with Satzinger et al. (2019) who found that intergenerational and focused group approaches improved child nutrition

Role of group based approaches in IYCF practices

Table 4 illustrates the cross-tabulation analysis of group-based approaches and their impact on behaviour-change and communication with respect child feeding practices in Marsabit County.

Table 4

Group Based Approaches in IYCF Practices

		GBA counselled at the facility with			
		Social Support	Social networks (Facebook, WhatsApp)	Group education	Caregivers Support Groups
ever breastfeed your child	Yes	70(82.4)	100(86.2)	78(95.1)	27(81.8)
	No	13(15.3)	10(8.6)	2(2.4)	3(9.1)
	Partially	2(2.4)	6(5.2)	2(2.4)	3(9.1)
first time put child to the breast	Immediately	37(44)	41(35.3)	22(26.8)	12 (37.5)
	Within first hour after birth	33(39.3)	52(44.8)	38(46.3)	12(37.5)
	Within first day	14(16.7)	20(17.2)	18(22)	5(15.6)
Gave colostrum in three days delivery	Yes	76(89.4)	91(78.4)	68(82.9)	25(75.8)
	No	4(4.7)	16(13.8)	9(11)	3(9.1)
	Don't know	5(5.9)	9(7.8)	5(6.1)	5(15.2)
Complementary feeding for three days	Yes	3(3.5)	0(0)	2(2.4)	0(0)
	No	82(96.5)	116(100)	80(97.6)	33(100)
	age was the child first given				
liquids/fluids	0-1 month	2(2.4)	3(2.6)	3(3.7)	1(3)
	2-3 months	7(8.2)	12(10.3)	8(9.8)	7(21.2)
	4-5 months	35(41.2)	47(40.5)	43(52.4)	13(39.4)
	6 months and older	41(48.2)	54(46.6)	28(34.1)	12(36.4)
		85(100)	116(100)	82(100)	33(100)

The results in Table 4 reveal that group-based methods, particularly social networks (86.2%) and group education (95.1%), were

highly effective in promoting infant and young child feeding practices. As pertains initiating breastfeeding, those immediately

counselled through social support and caregiver support groups accounted for 44.0%, 35.3%, and 37.5% respectively. On colostrum provision, common approaches were social networks (89.4%) and social support (78.4%), often through Facebook and WhatsApp. For the introduction of complementary feeding beyond six months,

social support and social networks were cited as effective by 48.2% and 46.6% of respondents respectively.

The Table 5 presents the findings on the relationship between group based approaches and socio-demographic data.

Table 5
Relationship between Group Based Approaches and Socio-Demographic Data

		Group based approaches		Chi-Square	P-value
		Yes (%)	No (%)		
Age (Years)	< 20	37 (90.2)	4 (9.8)	2.605	0.626
	21-30	137 (85.1)	24 (14.9)		
	31-40	49 (89.1)	6 (10.9)		
	41-50	29 (80.6)	7 (19.4)		
	> 50	21 (91.3)	2 (8.7)		
Marital status	Single	28 (80)	7 (20)	3.469	0.326
	Married	227 (88)	31 (12)		
	Divorced/Separated	16 (80)	4 (20)		
	Widowed	2 (66.7)	1 (33.3)		
Education level	No formal education	26 (83.9)	5 (16.1)	13.404	0.033
	primary level	128 (87.7)	18 (12.3)		
	Secondary level	129 (86.6)	20 (13.4)		
Occupation	Unemployed	117(84.8)	21 (15.2)	3.280	0.194
	Self-employed	119 (90.2)	13 (9.8)		
	Employed	37(80.4)	9 (19.6)		
Parity	One	113(89.7)	13 (10.3)	4.455	0.108
	Two	112 (81.8)	25 (18.2)		
	Three	48 (90.6)	5 (9.4)		
Place of birth	Health facility	198 (84.6)	36 (15.4)	12.422	0.020
	Home	75 (91.5)	7 (8.5)		
Household main source of income	Agriculture	31 (93.9)	2 (6.1)	16.635	0.056
	Livestock Farming	57 (83.8)	11 (16.2)		
	Salaried employment	71 (89.9)	8 (10.1)		
	Casual work	79 (80.6)	19 (19.4)		
	Self-employed	35 (92.1)	3 (7.9)		

Results in Table 5 indicate that a significant majority (85.1%) across age groups favored

group-based strategies. Furthermore, group based strategies were preferred by 88.0% of

those married, 87.7% who had primary education, and 83.9% with secondary education. Among self-employed individuals, 90.2% supported group-based approaches, 84.6% of those who gave birth in health facilities, and 80.6% of the casual laborers. Significant factors affecting group-based approach preferences included education, place of birth, and household income. Notably, there were no significant associations between group-based approach strategies and socio-demographic factors like age, marital status, occupation, and parity.

These findings are consistent with Aboud et al. (2020), Medoua et al. (2018) and Nikiema et al. (2020) who employed various group-based approaches and reported significant improvements in maternal nutritional

practices. The results of the study align with Mulualem et al. (2016), who noted that group-based approaches enhanced child weight and nutrition outcomes. This underscores the impact of caregivers' KAP through group-based and interpersonal communication in nutritional education. Tomedi et al. (2020) also concur that combined group-based education on complementary feeding and hygiene led to improvement of health and reduced child malnutrition in Kenya.

Role of community mobilization strategies on IYCF Practices

Table 6 presents the study findings on the role of community mobilization strategies on IYCF Practices.

Table 6

Community Mobilization Strategies and IYCF Practices

		Social/ community mobilization strategies				
		Campaigns	Special events	Community engagement	Community interventions	Community outreach
Ever breastfeed your child	Yes	99(85.3)	63(86.3)	65(84.4)	29(96.7)	19(95)
	No	11(9.5)	7(9.6)	8(10.4)	1(3.3)	1(5)
	Partially	6(5.2)	3(4.1)	4(5.2)	0(0)	0(0)
First time to put child to the breast	Immediately	47(40.5)	19(26.4)	29(38.2)	9(30)	8(40)
	Within first hour after birth	46(39.7)	32(44.4)	32(42.1)	14(46.7)	11(55)
	Within first day	18(15.5)	19(26.4)	12(15.8)	7(23.3)	1(5)
	Within second day	5(4.3)	2(2.8)	3(3.9)	0(0)	0(0)
Gave baby colostrum in first three days after delivery	Yes	95(81.9)	59(80.8)	63(81.8)	25(83.3)	18(90)
	No	12(10.3)	10(13.7)	6(7.8)	3(10)	1(5)
	Don't know	9(7.8)	4(5.5)	8(10.4)	2(6.7)	1(5)
Complementary feeding for 1st three days	Yes	2(1.7)	3(4.1)	0(0)	0(0)	0(0)
	No	114(98.3)	70(95.9)	77(100)	30(100)	20(100)

age was the	0-1 month	3(2.6)	2(2.7)	2(2.6)	2(6.7)	0(0)
child first given	2-3 months	10(8.6)	8(11)	12(15.6)	1(3.3)	3(15)
liquids/fluids	4-5 months	45(38.8)	34(46.6)	35(45.5)	1756.7 ()	7(35)
	>6 months	58(50)	29(39.7)	28(36.4)	10(33.3)	10(50)
	Total	116(100)	73(100)	77(100)	30(100)	20(100)

Concerning whether the respondent had ever breastfed, the most common social/community mobilization strategies were the community interventions and community outreach at 96.7% and 95.0% respectively. However, they were not significant in promoting breastfeeding. The most prevalent strategies for breastfeeding initiation were campaigns and community engagement at 96.7% and 86.3%

respectively. For the first breastfeeding experience of the child, campaigns and community engagement were predominant at 40.5%. On colostrum provision, all strategies captured over 80%.

Table 7 presents the relationship between social/community mobilization strategies and socio-demographic data

Table 7
Relationship between Social/Community Mobilization Strategies and Socio-Demographic Data
Counselled Social/ Community Mobilization Strategies

		Yes	No	Chi-Square	P value
Age (Years)	< 20	36(87.8)	5(12.2)	0.821	0.936
	21-30	137(85.1)	24(14.9)		
	31-40	45(81.8)	10(18.2)		
	41-50	30(83.3)	6(16.7)		
	> 50	20(87)	3(13.0)		
Marital status	Single	29(82.9)	6(17.1)	4.461	0.216
	Married	216(83.7)	42(16.3)		
	Divorced/Separated/Widowed	26(100)	0(0)		
Education level	No formal education	26(83.9)	5(16.1)	9.96	0.065
	primary level	124(84.9)	22(15.1)		
	Secondary level	105(84.7)	19(15.3)		
	College level	13(86.7)	2(13.3)		
Occupation Status	Unemployed	120(87)	18(13)	11.575	.055
	Self-employed	108(81.8)	24(18.2)		
	Employed	40(87)	6(13.0)		
Parity	One	111(88.1)	15(11.9)	12.410	.003
	Two	115(83.9)	22(16.1)		
	Three	42(79.2)	11(20.8)		
Place of birth	Health facility	200(85.5)	34(14.5)	8.305	.051

	Home	68(82.9)	14(17.1)		
household source of income	mainAgriculture	28(84.8)	5(15.2)	2.119	.714
	Livestock Farming	55(80.9)	13(19.1)		
	Salaried employment	66(83.5)	13(16.5)		
	Casual work	87(88.8)	11(11.2)		
	Self-employed	32(84.2)	6(15.8)		

Results in Table 7 indicate that among those attesting to using social/community mobilization strategies, the majority (85.1%) fell within the 21-30 age band, 83.7% were married, and 84.9% had primary education; while 84.7% had secondary education. Most (87.0%) were unemployed, compared to 81.8% who were self-employed. Significant factors included respondents' education ($\chi^2=9.96$, $p=0.065$), maternal occupation status ($\chi^2=11.58$, $p=0.055$), parity status ($\chi^2=12.41$, $p=0.003$), and place of birth ($\chi^2=8.31$, $p=0.051$).

These findings align with Inayati et al. (2019), who pointed out the positive impact of social mobilization strategies in nutrition education and enhancing the nutritional status of mildly wasted children through improved caregiver practices. Guyon et al. (2019) similarly emphasized the efficacy of interpersonal communication, community mobilization, and mass media in promoting micronutrient supplementation and improved IYCF practices. This sentiment is echoed by Kumar et al. (2022) and Nguyen et al. (2019) who noted significant enhancement in maternal dietary diversity through interpersonal counseling and community mobilization strategies.

4.0 Conclusions

Nutrition education significantly enhances nutritional practices, especially for rural infants and young children. Interpersonal communication methods like personalized counseling, household outreach, and peer education boost infant nutrition outcomes, and foster child growth. Study results underscore the role of behavior change communication in amplifying nutritional knowledge practices and behaviors within a community.

5.0 Recommendations

This study recommends coupling behavior change communication with interventions in translating nutritional knowledge into actionable practices, and improving community nutrition outcomes. Emphasizing structured SBCC interventions, particularly for resource-limited regions which is implemented by county governments such as Marsabit County, yields positive outcomes. Strategically designed SBCC interventions delivered through robust health and community systems can drive behavior change, necessitating adoption by policymakers at national and county levels of government so as to alleviate malnutrition.

Limitations of the Study

Several limitations were encountered in this study. Firstly, accessibility posed a challenge as the study concentrated on caregivers and guardians of children aged 6-23 months in Marsabit County, which mainly comprise of pastoral communities. Consequently, the findings may not be applicable to other non-ASAL regions. Additionally, language barrier between the respondents and the researcher compromised response reliability regarding the different strategies employed for training and communicating IYCF practices in Marsabit County. To extenuate this challenge, research assistants were enlisted to facilitate correct translation of the responses obtained.

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Declaration

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