Journal of Community & Public Health Nursing

Perspective Open Access

Determinants of Growth Monitoring Promotion Service Utilization Among Mothers Having Under Two Years Children in Jigjiga, Eastern Ethiopia

Muhyadin Ali*, Abdiwah Hashi, Hamsen Mowlid, Kadari Ahmed and Abdirahman Awmuse

Jigjiga University, School of public health, department of epidemiology, Jigjiga, Somali Region Ethiopia

Abstract

Developing nations have implemented growth monitoring and promotion initiatives for four decades. These programs assess children's weight and provide guidance to parents on their children's physical development, addressing infections, morbidity, mortality, and growth impediments. This study aimed to identify the determinants of growth monitoring and promotion service utilization among mothers with children under two years old in Jigjiga city, Ethiopia, in 2022. A case-control study was conducted in seven randomly selected kebeles. Data were collected from 142 cases and 283 controls using simple random sampling techniques. Logistic regression analysis was performed to identify variables associated with service utilization, adjusting for potential confounders. The study included 250 male [58.68%] and 159 female [41.32%] children under two years old. The mean age of the children was 11.79 months, ranging from 0 to 23 months. The mean age of the mothers in the study was 33.92 years. Maternal education, place of delivery, antenatal care (ANC) service utilization, ANC frequency, and nutrition advice were significantly associated with growth monitoring and promotion service utilization. The utilization of growth monitoring and promotion services in Jigjiga was lower compared to other countries. Maternal education, place of delivery, ANC service utilization, ANC frequency, and nutrition advice were identified as important factors influencing service utilization. To improve the utilization of these services, it is recommended that stakeholders involved in the implementation of growth monitoring and promotion programs collaborate to ensure effective program implementation.

Keywords: Growth, Nutrition, growth promotion initiatives, Ethiopia.

Introduction

Growth monitoring and promotion (GMP) involves regularly assessing a child's growth, comparing it to a benchmark, evaluating growth adequacy, and selecting particular actions through focused counseling and referral. Increased caregiver comprehension of child growth patterns, improved nurturing behaviors, and greater utilization of additional resources contribute to children reaching their maximum potential. These interactions provide health workers with a crucial chance to offer essential nutrition, child health, and development services [1].

Growth monitoring and promotion (GMP) programs have been implemented in nearly all developing nations for the last four decades. Child growth monitoring techniques are often practiced throughout Africa, Asia, Europe, Latin America, and the Caribbean, as indicated by a global evaluation [2]. GMP programs, as defined by the World Health Organization, are dietary interventions that involve measuring and tracking children's weight to educate parents on actions that can enhance physical growth [3].The effectiveness of GMP programs in improving baby survival and development through early detection and prevention of malnutrition has been repeatedly doubted [4]. Discovered insufficient scientific evidence to support the global promotion of GMP programs after conducting a thorough analysis of GMP initiatives through a systematic review. Child malnutrition is significant global public health concern. Under nutrition is responsible for about 45% of deaths among children under the age of five [5]. In 2020, worldwide estimates indicated that 149 million children under the age of 5 were stunted, 45 million were wasting, and 38.9 million were overweight or obese [5]. Sub-Saharan Africa had 57.5 million children under five who were stunted in 2019, an increase from 49.2 million in 2000. Additionally, 11.8 million children were wasted, with 3.0 million experiencing severe wasting and 5.2 million being overweight [6].GMP is a preventive measure that combines GM with promotion to enhance awareness of child development, improve caregiving habits, boost the need for further services, and act as a central component in an integrated child health and nutrition program [7].Growth monitoring and promotion (GMP) is a proactive approach that monitors, evaluates, and analyzes the elements affecting a child's growth to determine if it is sufficient or insufficient. It enhances the child's nutritional health, decreases mortality and morbidity in youngsters, and promotes communication and engagement [8]. In most nations worldwide, the attendance rate, promotion, and educational effectiveness related to GMP are generally low, and moms struggle to comprehend the growth chart. There is less research on the correlation between implementing GMP programs and the resulting modifications in caring practices [8].

The National Nutritional Program (NNP) of Ethiopia views Good Manufacturing Practices (GMP) as a key strategy for enhancing the nutritional well-being of children. It is being carried out at the grassroots level through health extension programs. GMP is a preventive measure that combines GM with promotion

to raise knowledge of child development, enhance caregiving habits, boost the need for additional services, and act as the central component in an integrated child health and nutrition initiative [9]. Enhancing child health from conception to a child's second birthday

***Corresponding author:** Muhyadin Ali, Jigjiga University, School of public health, department of epidemiology, Jigjiga, Somali Region Ethiopia, E-mail: muhyadinomer44@gmail.com

Received: 03-July-2024, Manuscript No: JCPHN-24-141104; **Editor assigned:** 05-July-2024, Pre-QC No: JCPHN-24-141104 (PQ); **Reviewed:** 19-July-2024, QC No: JCPHN-24-141104; **Revised:** 21-July-2024, Manuscript No: JCPHN-24-141104 (R); **Published:** 28-July-2024, DOI: 10.4172/2471-9846.1000550

Citation: Muhyadin A (2024) Determinants of Growth Monitoring Promotion Service Utilization Among Mothers Having Under Two Years Children in Jigjiga, Eastern Ethiopia. J Comm Pub Health Nursing, 10: 550.

is vital for survival [10]. Although the Ethiopian government has introduced GMP services at the community level, data shows that malnutrition is still common and participation in growth monitoring is low in the country. There is less study in Ethiopia on the factors that impact the utilization of Growth Monitoring and Promotion services. Identifying the determinants of low coverage of GMP service utilization assists nutrition program implementers in designing evidence-based strategies [10].

Worldwide, 144 million children under five years old, which accounts for one-fifth of this age group, are stunted, meaning their height-for-age is two standard deviations below the median set by the World Health Organization [WHO] Child Growth Standards. Meanwhile, 47 million individuals, representing 7% of the total, are classified as wasted, which means they have a weight-for-height ratio that is two standard deviations below the WHO Child Growth Standards [11]. The Ethiopian government has been offering Growth Monitoring and Promotion (GMP) services at the community level through health extension programs to improve child nutritional status. GMP is a preventive activity that involves monitoring child growth, promoting good care habits, increasing awareness about child development, and enhancing the demand for necessary services within an integrated child health and nutrition program [12]. Child malnutrition is a significant global public health issue. Approximately 45% of mortality in children under 5 years of age are associated with under nutrition [13].151 million children under the age of five were stunted, 51 million were wasting, and 52 million were overweight worldwide [14]. Child malnutrition remains a significant public health concern in Ethiopia. Stunting affected 37% of Ethiopians, underweight affected 21%, and wasting affected 7%, as reported by the 2019 Ethiopian national Demographic and Health Survey (EDHS) [15]. In the Amhara area, the prevalence of stunting was 41%, ranking it as the third highest among all regions in the country [14]. Infections, morbidity, and mortality, as well as mental, cognitive, and economic development, can all be exacerbated by poor child growth and development in the early stages of life [16].Promoting child growth and development is a key health priority to reduce child mortality and poverty [17]. Research has shown major discrepancies between the intended goal and the actual implementation of Growth Monitoring and Promotion, which is crucial for ensuring optimal child health [18,19]. The significant occurrence of malnutrition in numerous low and middle income nations, such as Ethiopia, confirms this reality [9]. Participation in Good Manufacturing Practices (GMP) in Ethiopia remains low. In Southern Ethiopia, research revealed that the utilization of GMP services was 16.9% in Mareka district and 11% in Butajira area [12].

Several healthcare system changes have been implemented in the Somali regional state, focusing on GMP, but with little success. Further research could provide valuable insights into the factors affecting the successful adoption of GMP in Ethiopia [10]. Measurements should begin at birth and be taken monthly, carefully documented on a growth chart, and analyzed by healthcare workers who give services, including information through counseling. Customized community-level intervention packages should be a crucial component of national nutrition programs. Some of these therapies can be associated with or provided during GMP sessions [15]. The health sector has intensified its efforts to promote good nutritional practices by implementing the Health Sector Development Plan (2010/11-2014/15). The goal is to enhance the nutritional status of mothers and children by engaging in a reinforced Growth Monitoring Promotion (GMP) program to maximize its effectiveness in reducing stunting [20]. Since 2008, GMP has been adopted as a nutrition-specific intervention in Ethiopia, however the adoption of growth monitoring and promotion services has been restricted .There is insufficient knowledge on the elements that influence the continuation of Good Manufacturing Practice (GMP) after the completion of immunization and how to utilize it [21]. The purpose of this study is to evaluate the consumption of GMP services and the factors involved in preventing malnutrition. Insufficient study on the service utilization of GMP in Ethiopia, especially in the Somali region, might be addressed to fill the gap and pave the way for future studies.

Methods and Materials

Study area and period

The study aims to investigate the determinants of growth monitoring and promotion service utilization among mothers with children under two years of age in Jigjiga, Eastern Ethiopia. Jigjiga is a city located in the eastern part of Ethiopia and serves as the study area for this research. Specifically, the study is conducted in the Jigjiga City administration, located in the Fafan Zone of the Somali Regional State in eastern Ethiopia. Jigjiga town is situated approximately 628 km from Addis Ababa, the capital city of Ethiopia. The town has an elevation of 1609 meters (5,279 feet) above sea level. It is divided into 20 Kebeles, which are local administrative units within the town. The population of this administrative town is approximately 300,000, with 123,422 men and 126,578 women. During the time of this study, the city administration consisted of four districts, each comprising 20 Kebeles (refer to Annex 1 for further details).

Study design

In this research, a community-based unmatched case-control study design was utilized to investigate the determinants of growth monitoring promotion service utilization among mothers with children less than two years of age in Jigjiga, Eastern Ethiopia. Cases and controls were selected based on their utilization of these services, with cases representing mothers with low or no utilization and controls representing mothers with high or regular utilization. Data on potential risk factors and determinants were collected through interviews or questionnaires

Sampling technique and procedure

In the study conducted in Jigjiga city, a combination of sampling techniques was employed. Seven kebeles were selected using simple random sampling with the lottery method, proportionally allocated based on population size. Within the selected kebeles, study participants were chosen using systematic random sampling, ensuring equal chances of selection. Cases were selected using simple random sampling at the chosen kebeles, while three corresponding controls were randomly selected for each case from the same kebeles. This sampling procedure aimed to provide a representative sample of both cases and controls, allowing for valid and generalizable findings in relation to the utilization of growth monitoring promotion services among mothers in Jigjiga city.

Data collection technique and tools

The data for this study was collected through interviews using a structured questionnaire. The questionnaire was designed to gather information on various factors related to socio-demographics, economics, healthcare, behavioral factors, and maternal/caregiver characteristics. The questionnaire was adapted from previous studies and included validated questions (reference to study 5). The data collection process was conducted by a team of well-trained and experienced healthcare professionals, including two clinical nurses and

three diploma midwives. They were responsible for administering the interviews and collecting the data.

Several specific aspects were assessed during the data collection process. Antenatal care (ANC) visits were evaluated based on the minimum recommended number of visits (four or more visits) and categorized as "yes" for meeting the recommendation or "no" for fewer visits. Postnatal care (PNC) visits were also assessed, with a "yes" indicating at least one visit during the postpartum period and "no" indicating no visits at all. The vaccination status of children was checked by observing the immunization card, and if the card was not available, mothers or caregivers were asked to recall the vaccination history. BCG vaccination was verified by observing the presence of a scar on the right (or left) arm.

Wealth index was computed using ownership of different assets, house characteristics, and type of latrine and water source. The resulting wealth index was categorized into three groups: low, medium, and high. The distance to the health facility was determined by the time taken to reach the nearest health facility from the mothers' homes. It was classified as less than one hour or more than one hour to reach the nearest health facility.

The knowledge of mothers regarding growth monitoring promotion (GMP) service utilization was assessed using ten questions related to GMP service utilization. Each question had two response options: "yes" (scored as 1) or "no" (scored as 0). The total score ranged from 0 to 10, and a score below 7 was categorized as poor utilization. The attitude of mothers towards GMP service was assessed using 12 attitude questions measured on a Likert scale. The total score ranged from 12 to 60, and a score below 75% was categorized as unfavorable utilization.

By employing these data collection techniques and tools, the study aimed to capture relevant information on various factors associated with growth monitoring promotion service utilization among mothers in Jigjiga city, enabling a comprehensive analysis of the determinants of service utilization.

Data quality control

The questionnaire was translated to English language and translated back to Somali, to ensure consistency. The questionnaire was pre-tested in 5% of the sampled population in non-selected kebeles before the actual data collection. Data collectors and supervisors was trained for two days. Test-retest reliability of the research instrument was established during pretesting. Test re-test reliability was established by examining the consistency of pre-test responses. On spot checking and correction was made for incomplete questionnaire by supervisor. The overall data collection processes were controlled by the principal investigator.

Data processing and analysis

The data collected for the study underwent a systematic process of analysis. After coding and entering the data into Epi info version 7, it was exported to STATA version 15 for further analysis. Descriptive statistics were computed and presented using tables, figures, and charts to summarize the characteristics of the study population. The goodness of fit of the models was assessed using the Hosmer and Lemeshow test, and checks for multi-collinearity between independent variables were conducted. Bi-variable logistic regression was performed initially, and variables with a p-value less than 0.25 were selected for inclusion in the multivariable logistic regression model to adjust for potential confounders. In the final model, variables with a p-value less than 0.05, along with adjusted odds ratios [AORs] and 95% confidence intervals [CIs], were considered statistically significant, indicating a significant association between the independent variables and the outcome variable. The use of these analytical techniques allowed for a comprehensive examination of the data and identification of meaningful associations.

Results

Socio-demographic characteristics

Child biographic and maternal health

According to the response of participants 207[50.6%] have got ANC service of which 22.2% and 77.8% were cases and controls respectively. where around 84.35% have visited the health facilities irregularly and 111(27.14%) of them delivered at health facility. Almost half of respondents utilize EPI service 3009(73%) and continuing the vaccination of which 23.67% and 73.66% were cases and controls respectively.

Mother's young child feeding knowledge

Participates were asked different question to assess their child feeding knowledge and their ability to read WHO weight-age growth chart for under-two children. Child feeding and growth monitoring knowledge assessed using different variables like time for early initiation of breast feeding, first thing that the child should take after birth, Exclusive breast feeding, continue breast feeding with additional meal, food frequency per day for sick child, ability to read the growth monitoring chart, food frequency based on child age, age to initiation of complementary feeding with different food group. Out of the 409 surveyed participants, most mothers were able to indicate the recommended age for introducing other foods to the child except bread and cereals 125[30.56%] of which 49% and 50.4% were cases and controls respectively. How- ever, more than sixty percent of mothers indicated that they received health care (Table 1).

Advice regarding growth monitoring and promotion. Almost all of the participants 379[92.67%] stated first thing that the child should take after birth should be mothers breast milk of which 33.2% and 67.7% were cases and controls respectively, while 30[7.33%] of them

Table 1: Socio-demographic of mother GMP in JigJiga town, Somali Regional, Ethiopia, august, 2022.

No 1	variable maternal education	Cases	Controls
	Illiterate	50(39.06%)	78(60.94%)
	Literate	82(29.18%)	199(70.82%)
2	mother's Age		
	18-30	57(34.76%)	107(65.24%)
	31-49	75(30.61%)	170(69.39%)
3	Occupation		
	Housewife	35(11.2%)	277(88.8%)
	Merchant	22(100%)	0(0%)
	Gov. employee	11(100%)	0(0%)
	private employee	64(100%)	0(0%)
4	Marital status		
	Married	65(34.69%)	160(65.1%)
	Divorced	47(28.66%)	117(71.34%)
5	Media Access		
	YES	69(35.03%)	128(64.97%)
	NO	63(29.72%)	149(70.28%)
6	Type of media		
	Radio	21(17.1%)	102(82.9%)
	Television	106(41.1%)	152(58.9%)

mentioned other than breast milk. Close to ninety percent of mothers mentioned early initiation of breast feeding should be within the first hour of delivery. With regard to exclusive breast feeding 391[95.60%] of them mentioned the child should be feed exclusively for the first six month among these 33.8% and 66.2% were cases and controls respectively.

Mother's appropriate feeding frequency

The overall study participants around 151[36.92%] of the mothers with 6-8 months babies were giving meals to their children five times per day. Children aged 9-23 months were giving eight times per day. Regarding feeding pattern more than 90% of the mothers were increasing meal frequency than before (Table 2).

Chart 1 Meal's frequency among mothers utilizing GMP service in jigjiga town, Somali Regional, Ethiopia, July, 2022.

Maternal WHO weight for age growth chart and GMP knowledge

Over all the study participants regarding how often they take their children for growth monitoring 75[18.3%] of the mothers were taking their children every month. Where more than sixty percent of them were aware of the benefits of baby weighing. More than seventy percent of the study subjects have missed their growth monitoring and promotion service. Only 125[30.6%] of the mother were able to interpret the growth curve [rising, falling and flatten]. Among the participants 92 [22.5%] get the regular utilization of GMP by outreach EPI (Table 3).

Factors associated with growth monitoring and promotion

The multivariable logistic regression showed that, maternal education, place of delivery, ANC service, ANC frequency, and nutrition advice were significantly associated with utilization of Growth monitoring and promotion. Mothers who are literate were (Table 4).

Times more likely to utilize GMP services as compared to who were illiterate [AOR= 4.75, [95% CI: [1.454, 15.574]] and mothers who were delivered at health facility were 2.40 times more likely to utilize GMP as compared their counterpart [AOR = 2.40, [95% CI: (1.206, 4.805)]. Mothers who had utilized ANC services were 2.37 times more likely to utilize GMP services as compared to mothers who had not utilized ANC services [AOR = 2.37; 95% CI: (1.328, 4.255)]. Mothers who had visited ANC regularly were 4.55 times more likely utilize GMP service compared to mothers who had visited irregularly [AOR = 4.55, 95%

Table 2: Child biographic and maternal health data of mother GMP in Jigjiga town, Somali Regional, Ethiopia, august, 2022.

Variable Child age	Cases	Controls
0-11 months	75(37.31%)	126(62.69%)
12-23 months	57(27.40%)	151(72.60%)
Child sex		
Male	77(32.08%)	163(67.92%)
Female	55(32.54%)	114(67.46%)
ANC service		
YES	46(22.2%)	161(77.8%)
NO	86(42.6%)	116(57.4%)
ANC frequency		
regular	14(21.9%)	50(78.1%)
irregular	118(34.2%)	227(65.8%)
PNC service		
YES	132(79.5%)	34(20.5%)
NO	0	243(100%)
Place of delivery		
YES	25(22.52%)	86(77.48%)
NO	107(35.91%)	191(64.09%)
Vaccination status		
Not vaccinated	6(20.7%)	23(79.3%)

Table 3: Mother's young child feeding knowledge in Jigjiga town, Somali Regional, Ethiopia, august, 2022.

NO 1	Variable nutritional advice	Cases	Controls
	Yes	87(37.0%)	148(63.0%)
	No	45(25.9%)	129(74.1%)
2	First thing the child should take after birth		
	Water	6(20.0%)	24(80.0%)
	breast milk	126(33.2%)	253(67.7%)
3	Early initiation of breast feeding		
	An hour	126(33.7%)	248(66.3%)
	three hours	6(17.1%)	29(82.9%)
4	Exclusive breast feeding		
	Three months	0	13(100%)
	Six months	132(33.8%)	259(66.2%)
	A year	0	5(100%)
5	Continue BF with meal		
	Six months	12(70.6%)	5(29.4%)
	A year	6(17.1%)	29(82.9%)
	Two years	114(31.9%)	243(68.1%)
6	Water		
	YES	92(34.1%)	178(65.9%)
	NO	40(28.8%)	99(71.2%)
7	Bread and cereals		
	YES	62(49.6%)	63(50.4%)
	NO	70(24.6%)	214(75.4%)
8	Dairy products		

Table 4: Maternal WHO weight for age growth chart and GMP knowledge JigJiga town Somali region, Ethiopia, august 2022.

Variable awareness of baby weighting benefits	Cases	Controls
YES	22(7.94%)	255(92.06%)
NO	110(83.3%)	22(16.67%)
Place of GMP		
EPI outreach	90(97.83%)	2(2.17%)
Health facility	20(50.0%	20(50.0%)
who gives you the service		
HEWs	31(93.94%)	2(6.06%)
HCWs	78(78.79%)	21(21.21%)
family health card		
YES	48(30.77%)	108(69.23%)
NO	83(33.20%)	169(66.80%)
number of months attended		
less than two	66(73.33%)	24(26.67%)
three and more	39(92.86%)	3(7.14%)
Missed GMP		
YES	94(31.97%)	200(68.03%)
NO	38(33.04%)	77(66.96%)
why you don't start weighting your baby		
work overload	15(45.45%)	18(54.55%)
lack of GMP info	12(42.86%)	16(57.14%)
Finishing vaccination	9(42.86%)	12(57.14%)
Lack of information	27(54.00%)	23(46.00%)
can you read the growth chart		
YES	125(100.0%)	0
NO	7(2.46%)	277(67.73%)

Table 5: Factors Associated with Growth Monitoring and Promotion among under- two children in jigjiga town, Somali region, Ethiopia 2022.

Variables	Cases	Controls	COR 95% CI	AOR 95% CI
Maternal education				
illiterate	50(39.06%)	78(60.94%)	I	
literate	82(29.18%)	199(70.82%)	1.55(1.003, 2.441)	4.75(1.454, 15.574) **
Mother's Age				
18-30	57(34.76%)	107(65.24%)	I	
31-49	75(30.61%)	170(69.39%)	1.20(0.792,1.839)	0.35(0.117, 1.086)
Place of delivery				
Health facility	25(22.52%)	86(77.48%)	1.92(1.163,3.191)	2.40(1.206, 4.805) **
Home	107(35.91%)	191(64.09%)	I	
Child age				
0-11 months	75(37.31%)	126(62.69%)	I	
12-23 months	57(27.40%)	151(72.60%)	1.57(1.038, 2.394)	1.11(0.6280, 1.980)
ANC service				
YES	46(22.2%)	161(77.8%)	2.95(1.687, 3.990)	2.37(1.328, 4.255) ***
NO	86(42.6%)	116(57.4%)	I	
ANC frequency				
Regular	14(21.9%)	50(78.1%)	1.85(0.985,3.496)	4.55(1.988, 10.430) ***
irregular	118(34.2%)	227(65.8%)	I	
Early initiation of breast feeding				
An hour	126(33.7%)	248(66.3%)		
three hours	6(17.1%)	29(82.9%)	2.45(0.993, 6.069)	2.20(0.644, 7.528)
Family health card				
YES	48(30.77%)	108(69.23%)	1.12(0.728, 1.717)	1.07(0.591, 1.958)
NO	84(33.20%)	169(66.80%)	I	
Nutrition Advice				
YES	25(9.84%)	229(90.16%)	20.42(11.957,34.864)	32.3(17.00, 61.419) ***
NO	107(69.03%)	48(30.97%)	I	

CI: (1.988, 10.430)]. Mothers who received nutrition advice were about 32 times more likely than those mothers who did not receive nutrition advice [AOR=32, 95%CI= (17.00, 61.419)] (Table 5).

Discussion

This community-based case control study was conducted to assess factor associated with growth monitoring and promotion utilization. By multivariate analysis, this study revealed that there is statistically significant association in between maternal education, ANC, ANC frequency, institutional delivery, nutrition counseling and GMP. In this study, maternal education was found to be a factor associated with growth monitoring. This is in line with a study conducted at southern Ethiopia Are town which revealed Mothers who have no formal education were more likely to have poor knowledge in GM [21]. On the other hand, the study found that having a ANC follow up has significant association with growth monitoring and promotion service utilization this consistent with a study done in southern Ethiopia which showed that women who delivered in health institution were more likely to utilize the GMP services as com- pared to home delivery [20]. Also, the study pointed out that regular ANC frequency has significant association with GMP and this in agreement with a study done in northern Ethiopia which revealed that mothers who utilized ANC services regularly were more utilize GMP services than those who had not ANC service utilization reg- ularly [5]. The possible justification for this may be during Antenatal care nutritional counseling is given and most of the mothers understand the service that was got from the health institution and after delivery, the mothers will be happy to attend the GMP session. This study found institutional delivery has significance association with growth monitoring and promotion, this result is in line with a study done Amhara region which showed that mothers who had experience of giving birth at health institution were more likely to give birth at health institution than those who did not have experience. The possible explanation could be that mothers who had the history of institutional delivery have practical experience about the life treating conditions than those who did not. This experience could motivate the mother to give birth at health Institutions and utilize GMP. Also, this result found that nutrition Counseling has significant association with GMP which is consistent with a study done in Kenya which showed mothers/caregivers who received nutrition advice alongside GM services were more likely to participate in continued GMP. The reason for this may be counseling has a greater impact on motivating mothers to attend GMP sessions.

Conclusion and Recommendation

This study concludes that despite substantial efforts at both health institutions and the grassroots level, the outcomes of Growth Monitoring and Promotion (GMP) services in Ethiopia remain below the ideal when compared to other countries. Various factors significantly influence the utilization of GMP services. Maternal education plays a crucial role, as better-educated mothers are more likely to utilize GMP services effectively. The place of delivery also impacts GMP service utilization, with institutional deliveries often associated with better follow-up and access to these services. The usage of antenatal care (ANC) services, particularly the frequency of ANC visits and the quality of nutrition advice provided, is another critical factor. Regular and comprehensive ANC services ensure that mothers receive necessary guidance and support, promoting better child growth monitoring practices. Despite the potential benefits, the current implementation of GMP services faces challenges that hinder optimal performance. These include limited resources, inadequate training of health personnel, and insufficient awareness among mothers about the importance of growth monitoring. Addressing these issues is essential for improving

the effectiveness of GMP services and achieving better child health outcomes. To address these findings, public health and nutrition program managers should foster GMP and counseling skills across different kebeles and develop strategies to change mothers' perceptions towards growth monitoring. Enhancing the accessibility and utilization of ANC services is crucial, including increasing the frequency and quality of ANC visits. Additionally, improving the accessibility and utilization of GMP services through community outreach programs will help boost child growth outcomes and reduce malnutrition rates in Ethiopia. By implementing these recommendations, the effectiveness of GMP services can be significantly enhanced, leading to better child health outcomes and a reduction in malnutrition in Ethiopia.

References

1. Rondinelli DA (1986) Improving development management: Lessons from the evaluation of USAID projects in Africa. International Review of Administrative Sciences 52: 421-45.
2. Charlton KE, Kawana BM, Hendricks MK (2009) An assessment of the effectiveness of growth monitoring and promotion practices in the Lusaka district of Zambia. Nutrition 25: 1035-46.
3. Grummer-Strawn LM, Krebs NF, Reinold CM (2009) Use of World Health Organization and CDC growth charts for children aged 0-59 months in the United States 1-15.
4. Roberfroid D, Kolsteren P, Hoeree T, Maire B (2005) Do growth monitoring and promotion programs answer the performance criteria of a screening program? A critical analysis based on a systematic review. Tropical Medicine & International Health 10: 1121-33.
5. Dagne S, Aliyu J, Menber Y, Wassihun Y, Petrucka P, et al. (2021) Determinants of growth monitoring and promotion service utilization among children 0–23 months of age in northern Ethiopia: Unmatched case-control study. BMC nutrition 7: 1-9.
6. Seidu F, Mogre V, Yidana A, Ziem JB (2021) Utilization of growth monitoring and promotion is highest among children aged 0–11 months: a survey among mother-child pairs from rural northern Ghana. BMC Public Health 21: 910-911.
7. Fisher M (1976) Growth of Zambian children. Transactions of the Royal Society of Tropical Medicine and Hygiene 70: 426-32.
8. Yeshaneh A, Fentahun T, Belachew T, Mohammed A, Adane D (2021) Utilization of growth monitoring and promotion services and associated factors among children aged 0-23 months in Banja District, Northwest Ethiopia 2020: A cross-sectional study. PLoS One 16: e0259968.
9. Zerfu TA (2017) Ethiopian Demographic and Health Survey, 2016. CSA and ICF 1-551.
10. Shekar M, Kakietek J, D'Alimonte M, Walters D, Rogers H, et al. (2016) Investing in nutrition: The foundation for development. Washington DC World Bank.
11. Liu Q, Taylor M, Nabwera H, Long Q (2021) The impact of growth monitoring and promotion on health indicators in children under five years of age in low- and middle-income countries. Cochrane Database of Systematic Reviews 2021: CD014785.
12. Feleke FW, Adole AA, Bezabih AM (2017) Utilization of growth monitoring and promotion services and associated factors among under two years of age children in Southern Ethiopia. PloS one 12: e0177502.
13. Organization WH (2018) Malnutrition Key Facts. World Health Organization 1-7.
14. Organization WH (2018) Levels and trends in child malnutrition: UNICEF/WHO/ World Bank Group joint child malnutrition estimates: key findings of the 2023 edition.
15. Indicators K (2019) Mini demographic and health survey. EPHI and ICF.
16. Black RE, Allen LH, Bhutta ZA, Caulfield LE, De Onis M, et al. (2008) Maternal and child undernutrition: global and regional exposures and health consequences. The lancet 371: 243-60.
17. Liu Q, Long Q, Garner P (2017) Growth monitoring and promotion (GMP) for children in low and middle income countries. The Cochrane Database of Systematic Reviews.
18. Ashworth A, Shrimpton R, Jamil K (2008) Growth monitoring and promotion: review of evidence of impact. Maternal & child nutrition 4: 86-117.
19. Bilal SM, Moser A, Blanco R, Spigt M, Dinant GJ (2014) Practices and challenges of growth monitoring and promotion in Ethiopia: a qualitative study. Journal of health population and nutrition 32: 441.
20. Feleke FW, Adole AA, Bezabih AM (2017) Utilization of growth monitoring and promotion services and associated factors among under two years of age children in Southern Ethiopia. Plos one 12: e0177502.
21. Melkamu AW, Bitew BD, Muhammad EA, Hunegnaw MT (2019) Prevalence of growth monitoring practice and its associated factors at public health facilities of North Gondar zone, northwest Ethiopia: an institution-based mixed study. BMC pediatrics 19: 1-8.