Growth monitoring service utilization and its associated factors among mothers of children less than 2 years in Muhir Aklil district, Gurage zone, Southern Ethiopia, 2020

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Abstract

Introduction: United Nations International Children’s Emergency Fund recommends a 100% growth monitoring and promotion coverage, but the prevalence of growth monitoring and promotion service utilization rate in Ethiopia is only 16.9%. Even though Ethiopia is attempting different strategies to cope up with this low rate, the problem is still unresolved.

Objective: The aim of this study is to assess the prevalence of growth monitoring service utilization and its associated factors among mothers of children less than 2 years in Muhir Aklil district.

Methods: A community-based cross-sectional study was conducted on 443 study participants from 10 February to 8 March 2020. The study participants in the study were selected using simple random sampling technique. The collected data were entered in to EpiData3.1 and exported to SPSS version 23. Bivariate and multi-variable logistic regression analysis was used to identify factors associated with growth monitoring service utilization. Statistically significance was declared at p value < 0.05% and 95% confidence interval.

Results: In this study, the overall growth monitoring and service utilization was 32.9%. Fully empowered mothers adjusted odds ratio: 2.7, 95% confidence interval: 1.5–4.3), receiving counseling (adjusted odds ratio: 2.8; 95% confidence interval: 2.0–4.7) and regularly participating on community conversation (adjusted odds ratio: 2.8, 95% confidence interval: 1.8–7.6) were significantly associated with growth monitoring service utilization.

Conclusion: Growth monitoring services utilization was 32.9%. Maternal empowerment on decision-making, engaging women on financial control, knowledge of mothers receiving counseling and regularly participating on community conversation were the independent factors for growth monitoring service utilization. The health extension workers should strengthen maternal empowerment and community conversation through increasing maternal awareness.

Keywords
Associated factors, growth monitoring service, under 2 year children, mothers

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Introduction

Growth monitoring and promotion (GMP) is a preventive activity that uses measuring and controlling growth status, to facilitate communication and interaction with caregiver and to generate adequate action to promote child growth.¹ Growth monitoring (GM) concept lays much emphasis on child growth and development in the age range of 0–59 months.² It has effect on individuals and societies like diminished cognitive and physical development, reduced productive capacity and poor health, and increased risk of degenerative diseases.³ It has also effect on achieving sustainable development goal (SDG) by supporting child nutrition and growth.⁴

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An estimated 19 million under-5 children suffered from Severe Acute Malnutrition (SAM), and it is estimated to account for approximately 400,000 child deaths each year. Ethiopia is placed at the second place in high burden of malnutrition among sub-Saharan countries. According to Ethiopia Demographic and Health Survey (EDHS) report 2019, stunting, underweight, and wasted among children under 5 years of age is 37%, 21%, and 7%, respectively. Currently about 154 countries, including Ethiopia use GM as an essential component of primary health care. GM utilization is used to improve nutritional status, reduce the risk of mortality, counsel caregivers, and lead to early referral for conditions diagnosed as growth disorder of children. Even though United Nations International Children’s Emergency Fund (UNICEF) recommends a 100% GM coverage, GMP utilization rate in Ethiopia was only 16.9%. Currently, Ethiopian government has been implementing community-based nutrition (CBN) program, as a key component of the national nutrition program. It facilitates to increase the GM utilization for all children under 2 years of age together with counseling for caregivers. There is paucy of research conducted on the prevalence and factors influencing GM service utilization in Ethiopia. The aim of this study was to assess the prevalence of GM service utilization and its associated factors among mothers of children less than 2 years in Muhir Aklil district.

Methods
This study was conducted at Mihur Akelel district, Gurage Zone, Southern Ethiopia, 210km south from Addis Ababa and 52 km from Wolkite, the capital city of Gurage Zone of the Southern Nations, Nationalities and Peoples’ Region. The district has an estimated total population of 123,665 (male = 57,809, female = 65,856). The total under 2 year’s children was 5476. The town has 1 general hospital, 1 private hospital, 1 health center, 10 private clinic, and 5 health posts. A community-based cross-sectional study was conducted from 10 February 2020 to 8 March 2020. The study populations were all mothers who had under 2 year child in Mihur Aklil district that fulfill the eligibility criteria.

Sample size and sampling procedure
The sample size was determined by using double population proportion formula by considering the following assumptions: 95% confidence interval (CI), proportion of exposed to non-exposed = 1, adjusted odds ratio (AOR) = 3.08, power = 80%, the value of “p” (prevalence in exposed (child age of 18–23 month) = 25.3) and prevalence in non-exposed (child age 6–11 month) which was found to be 7.5% (done in southern Ethiopia). Accordingly, the sample size with 10% non-response rate for this study was 295. The total sample size by multiplying by design effect of 1.5 is 443. The district has 30 rural kebeles. Multi-stage cluster sampling technique was used to select the study participants’ from study population. Nine kebeles were selected from 30 kebeles using simple random sampling technique by lottery method. Samples were proportionally allocated to randomly selected kebeles. The study participants were selected from nine kebeles using simple random sampling technique from family folder of the health post. A total of 443 study participants were select using simple random sampling technique (computer-generated method) from a list found from CHIS family folder. All mothers with children under 2 years old who have been lived in Muhir Aklil district for at least 6 months before the study in were included in the study. Mothers with children under 2 years of age suffering from chronic illnesses like mental disability and unable to communicate were excluded from the study.

Operational definition

**GM services utilization (yes)**
Attending GMP sessions once per month according to the child’s age.

**GM services utilization (no)**
Unable to attend GMP sessions once per month according to the child’s age.

**Women’s empowerment**
A women who decides alone or jointly with her partner in the following decision-making areas: (1) decision on health care for herself and her child, (2) decision on purchasing major household purchase, and (3) decision on asking families/relatives. If she had decided on all the three, she had considered as fully empowered, decided on 1–2 considered as partially empowered, and <1 conceded as disempowered.

**Workload**
Mothers/care givers who have not get support in homework either from husband, servant, or any other family member.

**Knowledge on GM service**
To measure knowledge of the mothers on growth, monitoring, and promotion, a scoring system was used. Each correct response was scored as 1 and incorrect response scored as 0 (zero). Variables in the questionnaire were given a total score range from 1 to 7 number of knowledge questions. Using a frequency distribution, poor knowledge was defined as a score of <75 % while a score of ≥75 % was considered as good knowledge.
Attitude toward GM service

To measure attitude of the mothers on GMP, a scoring system was used. Each correct response was scored as 1 and incorrect response was scored as 0 (zero). Variables in the questionnaire were given a total score range from 1 to 4 (9 is the number of attitude questions, which were scored 36). Using a frequency distribution, unfavorable attitude was defined as a score of $< 75\%$ while a score of $\geq 75\%$ was considered as favorable attitude.

Accessibility of health care

Presence of health care facility located within 5 km (60 min return journey), providing GM service, opening hours and appointment systems.

Data collection tools and procedure

The standardized data collection tool was developed through reviewing of related literatures\textsuperscript{6,7,9,11} (Figure 1).

It contains information on socio-demographic, individual-related factors and health-related factors.

First the questionnaire was prepared in English, translated to Amharic and then back to English. A week before the beginning of actual data collection, a pre-test was done on 5% of the sample size in Ezha District. Training was given for data collectors and supervisors for how to manage the data collection process. The data were collected by face-to-face interview by using interviewer administered structured questionnaire. Proper information was given for each participant on the purpose of the study and after getting written consent interviewing of respondents was cascaded based on questionnaire.

Statistical analysis

Data were entered into Epidata version 3.1 and then exported to SPSS version 23 for further analysis. The descriptive analysis like percentage, frequency, and mean were calculated. Bivariate and multi-variable logistic regression analyses were used to identify presence of associations between dependent and independent variables. In bivariate analysis, variables with $p \leq 0.25$ were entered to multi-variable logistic regression analysis. The Hosmer–Lemeshow test was used to check the appropriateness of the model for analysis.
The possible effects of confounders were controlled through multi-variable logistic regression analysis. The association between the explanatory and dependent variables were assessed at the p value of 0.05. The variables that show p value < 0.05 were declared as statistically significant variables in multi-variable logistic regression analysis. The degree of association between independent and dependent variables were assessed using crude odd ratio (COR) and AOR for bivariate and multi-variable logistic regression, respectively with 95% confidence interval.

Results

Socio-demographic characteristics of study participants

A total of 443 study participants participated in this study giving the response rate of 96%. Majority (412 (94.9%)) of the respondents were married. The mean age of the children was 9.7 month with SD ± 5. More than half (50.4%) of the children were males. Three-hundred ninety-two (90.4%) of the children were delivered at health facility (see Table 1).

Individual-related factor for GMP

More than half (54.6%) of participants had good knowledge on GMP service utilization. Almost more than half (56.2%) of mothers had favorable attitude on GMP service utilization. One-hundred fifty-eight (36%) of the participants regularly participate on community conversation (see Table 2).

Health-related factors for GMP

One-hundred fifty-seven (36.2%) of the respondents had accessible service for GMP Utilization. More than half (55.2%) of respondents wait a long time to get GMP service after reaching health post (see Table 3).

Prevalence of GM utilization

The prevalence of GMP service utilization was 32.9% (95% CI: 28.3, 37.6) (see Figure 2).

Factors associated with GM service utilization

In multi-variable logistic regression analysis variables, such as; mothers who have fully empowered and partially empowered on decision-making, financial controlling autonomy, knowledge on GM service utilization, participation on community conversation and counseling on GM service utilization were significantly associated with GM service utilization. Knowledge was statistically associated with GM service utilization. Mothers who have knowledge on GMP were 3.45 times more likely to have GMP utilization (AOR: 3.45, 95% CI: 2.13–5.92) than those mothers who had poor knowledge. Mothers who are regularly participating on community conversation were 2.76 times more likely to have GM service utilization (AOR: 2.76, 95% CI: 1.81–7.65) than

| Characteristic                        | Number | Percent (%) |
|---------------------------------------|--------|-------------|
| Age of mothers                        |        |             |
| ≤29 years                             | 177    | 40.8        |
| 30–39 years                           | 145    | 33.4        |
| ≥40 years                             | 112    | 25.8        |
| Marital status                        |        |             |
| Married                               | 412    | 94.9        |
| Not married                           | 22     | 5.1         |
| Educational status of husband         |        |             |
| Diploma and degree                    | 67     | 15.4        |
| Secondary school                      | 78     | 18.0        |
| Primary school                        | 118    | 27.2        |
| No formal education                   | 171    | 39.4        |
| Educational status of mother          |        |             |
| Diploma and degree                    | 38     | 8.8         |
| Secondary school                      | 88     | 20.3        |
| Primary school                        | 119    | 27.4        |
| No formal education                   | 189    | 43.5        |
| Religion                              |        |             |
| Orthodox                              | 268    | 61.8        |
| Muslim                                | 120    | 27.6        |
| Protestant                            | 46     | 10.6        |
| Ethnicity                             |        |             |
| Gurage                                | 339    | 78.1        |
| Amhara                                | 43     | 9.9         |
| Oromo                                 | 32     | 7.4         |
| Other                                 | 20     | 4.6         |
| Family size                           |        |             |
| ≤4                                    | 131    | 30.2        |
| 5–8                                   | 261    | 60.1        |
| ≥9                                    | 42     | 9.7         |
| Occupation of mothers                 |        |             |
| Formally employed                     | 60     | 13.8        |
| Trader                                | 80     | 18.4        |
| Farming                               | 294    | 67.7        |
| Age of child                          |        |             |
| ≤5 months                             | 108    | 24.9        |
| 5–11 months                           | 161    | 37.1        |
| 12–23 months                          | 165    | 38.0        |
| Sex of the child                      |        |             |
| Male 50.4                             | 219    | 50.5        |
| Female                                | 215    | 49.5        |
| Family income in ETB                  |        |             |
| ≥2000                                 | 212    | 48.8        |
| 1000–2000                             | 150    | 34.5        |
| <1000                                 | 72     | 16.7        |

ETB: Ethiopian Birr.
those who did not participate regularly. Mothers who have counseled on GM service utilization were 2.82 times more likely to have GM utilization (AOR: 2.82, 95% CI: 2.16–4.67) than those mothers who did not receive counseling service (see Table 4).

Discussion
This study had assessed the prevalence of GM service utilization and its associated factors among mothers of children less than 2 years in Muhir Aklil district, Gurage zone, southern Ethiopia. In this study, the overall GM service utilization was (32.9%). It is consistent with study conducted in Gondar Ethiopia which is 38.9%.12

This finding is lower than study conducted in Uganda (59%).11 The possible difference might be due to differences in economic and health delivery system. Those countries which are better in economic had better access in providing health professional, infrastructure, and transportation for their communities. This made mothers to utilize GM service.

In this study, having good knowledge on GM service utilization is associated with GM service utilization. It is consistent with study conducted in Southern Ethiopia9 and Ghana.13 The justification might be because of those mothers who had good knowledge will have awareness on poor outcome of non-utilizing GM service which leads to utilization of GM service. Presence of maternal knowledge on GMP improves children’s nutritional status, subsequently growth13 and improves infant and young child feeding practices.14

This study showed that receiving counseling significantly affect GM service utilization. It is consistent with study conducted in Ethiopia.15 The justification might be because of those who received counseling service had awareness on...
GM service utilization which will enforce them to utilize GM service.

This study showed that regularly participating in community conversation was significantly associated with GM service utilization. It is consistent with study conducted in Ethiopia.9,16 The justification might participating in community conversation had effect in attitude, practice, and knowledge on GM utilization.

This study showed that empowering mothers on financial control is associated with GM service utilization. It is consistent with study conducted in India.17 The justification might be because of mothers who had power on financial control had the ability of deciding performing what is important for their child and for themselves.

This study showed that mothers who had a power on decision-making were more likely to utilize GM service than their counter parts. It is consistent with study conducted in Nepal.18 The justification might be mothers’ who can decide on what they want without the influence of any other make them confident enough on their action to their children service utilization.11

Limitation

The cross-sectional study design has weakness in the establishing temporal relationship. It was better if supported by qualitative method. Barriers for non-utilization of GM could be better assessed using if it is supported by qualitative study.

Conclusion

GM services utilization was 32.9%. Maternal empowerment on decision-making, engaging women on financial control, knowledge of mothers receiving counseling and regularly participating on community conversation were the independent factors for GM service utilization. The health extension workers should strengthen maternal empowerment and community conversation through increasing maternal awareness.
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Authors contribution

T.M., G.E., A.D., K.L., and T.S. made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; agreed to submit to the current journal; gave final approval of the version to be published; and agree to be accountable for all aspects of the work.

Availability of data and materials

The data sets used/or analyzed during the current study available at all authors on reasonable request.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval

Ethical approval was obtained from Institutional Review Board of Wolkit University, College of Medicine and Health Science with the ethical approval number of wku/059/13. Formal letter of cooperation was written to Mother Akilel district Administration and district health office. It was approved by Institutional Review Board of Wolkit University, College of Medicine and Health Science.

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Informed consent

Written informed consent was obtained from all subjects before the study to assure the voluntariness of the participants. This is because study participant should be autonomous during conducting the research process. It is also ethical principle to get informed written consent to conduct study. For those study participants who could not able to read and write, the data collectors read the consent to study participants which is approved by Institutional Review Board of Wolkit University.

Informed consent

Informed written Consent was obtained from study participants before conducting the study to assure the voluntariness of the participants. The data collectors read the consent for study participants who could not read and write which is approved by Institutional Review Board of Wolkit University. Respondents were informed about the purpose and procedure of the study, the importance of their participation, and the right to withdraw at any time if they want and about privacy and confidentiality of the information given by each respondent kept properly and name was not be recorded.

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Supplemental material

Supplemental material for this article is available online.

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