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Prevalence of Health Information Uptake on Exclusive Breastfeeding among Mothers of Infants below Six Months in Rural Rwanda

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Abstract: **Exclusive breastfeeding (EBF) during the first six months of life is a proven, cost-effective strategy for improving child survival and health outcomes. Although Rwanda reports high national EBF rates, limited evidence exists on whether mothers receive, understand, and apply EBF-related health information. This study aimed to determine the prevalence of EBF health information uptake and describe information sources, accessibility, and perceived quality among mothers of infants younger than six months attending Kirehe District Hospital. A descriptive cross-sectional study was conducted between November and December 2025. Quantitative data were collected from 315 breastfeeding mothers using structured questionnaires, while qualitative data were obtained through five focus group discussions involving 53 mothers and 15 key informant interviews with healthcare providers. Descriptive statistics were analyzed using SPSS version 26. Findings showed that 90.1% of mothers had taken up EBF health information, while 83.5% reported receiving information from at least one source. Health facilities were the main source (73.0%), followed by media (18.0%), community health workers (5.3%), and family or friends (3.7%). Only 43.5% of mothers received EBF counseling at every antenatal care visit, whereas 40.5% received it occasionally and 16.0% rarely. Despite these gaps, 95.1% considered the information adequate. The study concludes that EBF information uptake in Kirehe District is high, but counseling remains inconsistent and largely dependent on health facilities. Strengthening counseling during antenatal care and expanding communication channels could improve access to breastfeeding information, support feeding decisions, and sustain breastfeeding practices as demand grows.**

Keywords: **exclusive breastfeeding; health information uptake; antenatal care; sources of information; Rwanda.**

I. INTRODUCTION

The World Health Organization recommends that infants be fed exclusively on breast milk for the first six months of life, a practice associated with measurable reductions in infant morbidity and mortality and with better long-term growth and cognitive outcomes [1], [2]. Despite broad international consensus on its value, global uptake of exclusive breastfeeding (EBF) remains short of target: only around 48 percent of infants under six months are exclusively breastfed worldwide, against a Sustainable Development Goal target of 70 percent by 2030 [3].

Sub-Saharan Africa shows wide variation around this average. Eastern Africa reports comparatively strong EBF prevalence near 61 percent, while Southern and Western Africa lag at roughly 34 percent and 32 percent respectively [4]. Rwanda is frequently cited as a regional success story, with national surveys placing EBF prevalence above 80 percent and positioning the country among the few low- and middle-income nations expected to reach the 70 percent SDG target ahead of schedule [5], [6]. This performance is generally attributed to a strong community health worker programme and the routine integration of breastfeeding counseling into antenatal and postnatal care.

National figures of this kind, however, describe breastfeeding outcomes rather than the process that produces them. A mother who is exclusively breastfeeding may have arrived at that practice through consistent, well-understood counseling, or through partial, fragmented exposure to EBF messaging, or through family pressure unconnected to any formal

information source. Distinguishing between these pathways matters because exposure to health information does not automatically translate into comprehension or sustained practice [7], [8]. For programme planning, the more diagnostic question is not simply "how many mothers exclusively breastfeed" but "how many mothers received adequate, timely EBF information, and from where."

This distinction has rarely been examined at sub-national level in Rwanda. National Demographic and Health Survey data aggregate breastfeeding indicators across provinces and do not isolate the channels through which individual mothers receive EBF information, nor how consistently that information is delivered across the antenatal care (ANC) schedule. Kirehe District, in Rwanda's Eastern Province, illustrates this gap. Kirehe District Hospital is the district's only referral hospital, drawing from a catchment population of roughly 460,860 people, of whom close to 94 percent live in rural areas, well above the national rural average [9]. Before the present study, no published evidence described how mothers in this district access, understand, or apply EBF-related health information, leaving local health planners without district-specific data to guide service design.

Antenatal care is widely regarded as the principal platform for delivering structured breastfeeding education, and mothers who receive EBF counseling during ANC in African settings are reported to be two-and-a-half to five times more likely to sustain EBF to six months than those who do not [10]. Yet evidence from the region also shows that counseling quality and consistency are vulnerable to heavy patient loads and limited provider time, meaning that high ANC attendance does not guarantee uniform information delivery [11], [12]. Whether this tension between coverage and consistency is present in Kirehe District had not been documented.

This paper reports findings from the first two objectives of a broader study on the uptake of EBF health information among mothers attending Kirehe District Hospital. Specifically, it sought to (i) determine the prevalence of EBF health information uptake among mothers of infants below six months, and (ii) assess the sources, accessibility, and perceived quality of this information, with particular attention to its delivery during ANC visits. The findings are intended to provide the district's first localized evidence base on EBF information uptake, useful to health facility managers, antenatal care providers, and programme planners seeking to strengthen breastfeeding counseling within existing maternal and child health services.

II. METHODS

A. Study Design and Setting

A descriptive cross-sectional design was used, combining a structured quantitative survey with qualitative data collection to allow triangulation of findings. The study was conducted at Kirehe District Hospital, the sole referral hospital in Kirehe District, Eastern Province, Rwanda, approximately three and a half hours by road from Kigali. The hospital's catchment area includes all 18 health centers and one medicalized health center in the district. In the ten months preceding the study, the hospital recorded between 500 and 600 deliveries per month, with roughly 95 percent of newborns initiating breastfeeding, making it a suitable setting for studying breastfeeding-related behavior [13].

B. Study Population and Sampling

The study population comprised breastfeeding mothers with infants below six months of age, recruited from the postnatal ward, pediatric ward, neonatal intensive care unit, pediatric development clinic, and outpatient department of Kirehe District Hospital. The required sample size was calculated using the Yamane (1967) formula at a 95 percent confidence level, yielding a base sample of 286 mothers, adjusted upward by 10 percent to allow for non-response, for a final target of 315 mothers. A stratified approach was applied across service delivery points, with half of all participants drawn from the postnatal ward and the remainder distributed across the other units, to avoid double-counting mothers who moved between wards during the study period.

Quantitative data collection ran from November to December 2025, during which all 315 targeted mothers completed an interviewer-administered, semi-structured questionnaire, giving a 100 percent response rate. To enrich and contextualize the survey findings, five focus group discussions (FGDs) involving a total of 53 breastfeeding mothers, and 15 key informant interviews (KIIs) with health service providers working in maternal, neonatal, and child health units, were conducted purposively during the final two weeks of December 2025, with recruitment continuing until thematic saturation was reached. Inclusion required that mothers reside in Kirehe District, have an infant below six months, have attended at least one ANC visit within the hospital's catchment area prior to delivery, and consent to participate; mothers unable to provide informed consent were excluded.

C. Data Collection Instruments and Procedures

Data were collected using a semi-structured questionnaire for mothers, together with separate FGD and KII guides. Instrument content validity was established through expert review by public health professionals at Kirehe Hospital and alignment of items with the study objectives. Tools were piloted at Kibungo Hospital in the neighboring Ngoma district, involving 32 mothers (10 percent of the main sample), four key informants, and two focus group discussions, with wording, sequencing, and logistics refined based on the pilot results. A test-retest procedure, administered one week apart with the same respondents, was used to assess the consistency of the quantitative tool.

D. Data Analysis

Quantitative data were entered in Excel 2016 and analyzed in IBM SPSS version 26. Data were screened for completeness and consistency before analysis. Descriptive statistics, including frequencies and percentages, were used to summarize the prevalence and sources of EBF health information uptake, consistent with the descriptive focus of this paper's objectives. Qualitative data from FGDs and KIIs were analyzed thematically and used to contextualize and corroborate the quantitative findings presented below.

E. Ethical Considerations

Ethical approval was obtained from Mount Kigali University's postgraduate school and ethical review committee, and from Kirehe Hospital on behalf of the Ministry of Health. All participants provided written informed consent after a full explanation of the study's purpose, procedures, and their right to withdraw at any stage without penalty. Data were collected anonymously using a private coding system, and electronic records were stored on password-protected devices accessible only to the research team, in line with Rwanda's Data Protection Law (No. 058/2021).

III. PREVALENCE OF EBF INFORMATION UPTAKE

All 315 recruited mothers were female, consistent with the maternal focus of the study. Most respondents were aged 20–24 years (32.7 percent) and married (76.5 percent); just over half had only primary-level education (54.0 percent), and the majority depended on agriculture as their main household income source (81.3 percent). All participating mothers had an infant below six months, and the large majority of these infants were under one month old (65.7 percent) and born at term (86.3 percent).

Among the 315 mothers surveyed, 284 (90.1 percent) reported having taken up EBF health information, that is, having received, understood, and used breastfeeding-related guidance in their daily care of the infant, while 31 mothers (9.9 percent) had not. This represents a high overall level of EBF information uptake within the study population.

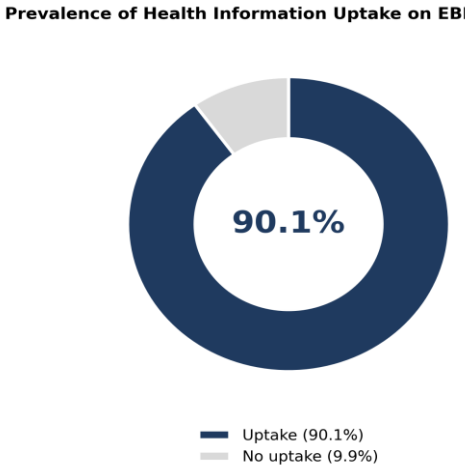

Fig. 1. Prevalence of EBF health information uptake among mothers (N = 315)

Considered separately, a related but distinct indicator, namely whether mothers had ever received EBF information from any source at all, stood at 83.5 percent (263 of 315 mothers), with the remaining 16.5 percent reporting no exposure to EBF information from any channel. The gap between this figure and the 90.1 percent uptake rate reflects the fact that some mothers reported applying breastfeeding guidance gained informally or through prior childbearing experience, even where they did not recall a single discrete information event during the current pregnancy or postpartum period.

IV. SOURCES OF EBF INFORMATION

Among the 263 mothers who had received EBF information, health facilities were overwhelmingly the dominant channel, cited by 73 percent of mothers. Media sources accounted for 18 percent, community health workers (CHWs) for 5.3 percent, and family or friends for the remaining 3.7 percent.

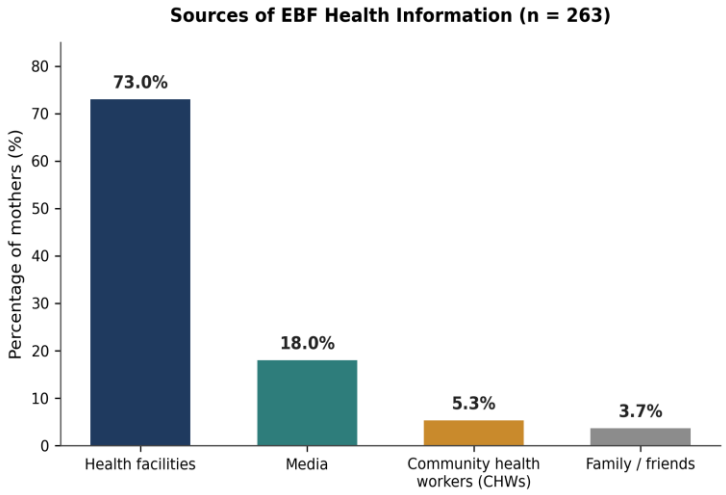

Fig. 2. Sources of EBF health information among mothers who received it (n = 263)

Qualitative data from FGDs and KIIs corroborated this pattern: participants in both settings consistently described health facilities and CHWs as their main or only point of contact with EBF guidance, and no FGD or KII participant identified mass media as a significant source in practice, despite its 18 percent share in the survey. This suggests that media-based exposure, where it occurs, tends to be passive or incidental rather than the deliberate counseling experience mothers described receiving at the facility level.

This concentration of information delivery in a single channel, the health facility, represents both a strength and a vulnerability for the local information system. It indicates that the facility is functioning effectively as the primary touchpoint for breastfeeding education, but it also means that any disruption to facility-based counseling, whether from staff shortages, heavy patient loads, or supply-side constraints, would leave few alternative channels to compensate, given how lightly community health workers, family networks, and media are currently used.

V. FREQUENCY AND QUALITY OF ANC COUNSELING

Beyond simply receiving EBF information at some point, the consistency with which mothers encountered this information across their antenatal care visits varied considerably. Of the 263 mothers who had received EBF information, only 43.5 percent reported receiving it at every ANC visit. A further 40.5 percent received it occasionally, and 16 percent rarely received EBF counseling during their ANC contacts.

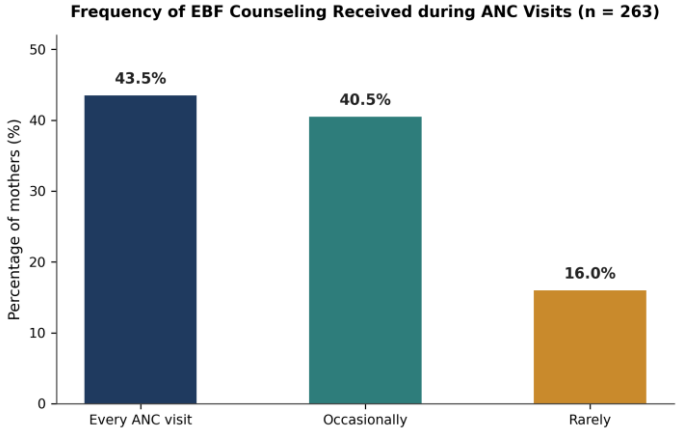

Fig. N. Frequency of EBF counseling received during ANC visits (n = 263)

Exclusive breastfeeding for six months was the dominant topic covered across information encounters, mentioned by 90.9 percent of mothers who received information, indicating that where counseling did occur, its content was substantially aligned with WHO-recommended messaging. Key informant interviews offered a plausible explanation for the inconsistency in delivery: health service providers described heavy workloads and competing clinical responsibilities as the principal constraint on their ability to deliver EBF counseling at every single ANC contact, rather than any gap in provider knowledge or willingness.

Despite this inconsistency in frequency, mothers' overall assessment of the information they did receive was strongly positive: 95.1 percent of the 263 mothers who received EBF information rated its quality as adequate, against 4.9 percent who rated it inadequate.

Table 1. Self-rated quality of EBF information received (n = 263)

Quality Rating	Frequency	Percent (%)
Adequate	250	95.1
Inadequate	13	4.9
Total	**263**	**100.0**

Nonetheless, a notable minority of mothers, 16.3 percent, reported difficulty applying the EBF information they had received in daily practice. The most commonly cited barrier was cultural practice (11.4 percent), followed by work-related time constraints (3 percent) and perceived insufficient breast milk (1.9 percent). Key informants linked some of this difficulty to variation in provider training, noting that not all staff delivering EBF messages had received standardized counseling preparation, which could produce incomplete or inconsistent messaging even when contact time was available.

VI. DISCUSSION

The finding that 90.1 percent of mothers in Kirehe District had taken up EBF health information is consistent with, and slightly exceeds, Rwanda's national EBF performance, which has been attributed to the structured integration of breastfeeding counseling within antenatal and community health worker programs [5], [15]. This result lends district-level confirmation to the picture suggested by national aggregate data: Rwanda's strong health system architecture for maternal and child health appears to extend its effect down to a predominantly rural, Eastern Province district that had not previously been studied in isolation.

That said, the 9.9 percent of mothers who had not taken up EBF information, and the wider 16.5 percent who reported no exposure to EBF information from any source, are consistent with global evidence that even strong-performing systems leave a residual group of mothers underserved, often those least connected to formal health services [14]. Closing this remaining gap may require more than scaling existing facility-based counseling; it may call for outreach specifically designed to reach mothers who, for reasons not captured in this study, do not engage with the dominant information channel.

The heavy concentration of information delivery in health facilities (73 percent) reinforces evidence from across the region that ANC and facility contact are the primary engines of EBF knowledge transfer [15], [16]. At the same time, the comparatively minor role played by community health workers (5.3 percent) is notable given Rwanda's frequently cited CHW programme; it suggests that, at least in this district, the CHW cadre may not yet be functioning as a major independent channel for EBF-specific messaging, even though it is often credited in national-level discussions of Rwanda's breastfeeding success. This points to a practical opportunity: equipping CHWs to deliver more structured, EBF-specific home and community counseling could diversify the information ecosystem currently dominated by single facility contact, and provide a fallback channel for mothers who attend ANC inconsistently.

The gap between high overall information receipt (83.5 percent) and considerably lower consistency of delivery across ANC visits (43.5 percent receiving counseling at every visit) echoes findings elsewhere in sub-Saharan Africa, where counseling quality and frequency are constrained less by provider knowledge than by caseload and time pressure [11], [12]. The qualitative accounts from health workers in this study, who described heavy workloads as the binding constraint on consistent counseling, are directly in line with this literature. Because mothers who receive EBF counseling across multiple ANC visits have been shown elsewhere to be substantially more likely to sustain EBF to six months [10], the irregularity documented here is a plausible point of future leakage even where overall uptake currently looks strong.

Finally, the high perceived adequacy of information (95.1 percent) alongside a meaningful minority reporting difficulty applying it (16.3 percent) illustrates a distinction increasingly emphasized in the breastfeeding literature: that satisfaction with information received does not necessarily predict ease of using that information under real-world cultural and economic constraints [8], [17]. The cultural practices and work-related constraints mothers identified as barriers in this study are not addressed simply by improving the content or frequency of counseling; they call for complementary interventions at the family, community, and workplace level, alongside continued strengthening of facility-based education.

VII. CONCLUSION

This study found a high prevalence of EBF health information uptake among mothers of infants below six months at Kirehe District Hospital, with nine in ten mothers reporting that they had received, understood, and used EBF-related guidance. Health facilities were by far the dominant source of this information, while community health workers, media, and family networks played only a marginal role. Although the large majority of mothers rated the information they received as adequate, fewer than half received EBF counseling consistently at every ANC visit, a gap that health workers attributed primarily to workload pressure rather than knowledge gaps. A meaningful minority of mothers also struggled to apply the information they received, principally due to cultural practices and work-related constraints.

These findings suggest that Kirehe District has built a generally effective, facility-anchored system for delivering EBF information, but one that remains narrow in its channels and uneven in its consistency. Strengthening the regularity of facility-based counseling across all ANC contacts, and deliberately activating underused channels such as community health workers, would help protect and extend the district's already strong performance on EBF information uptake. Health facility managers and district health planners may find these findings useful in identifying realistic, low-cost adjustments to existing antenatal care delivery, rather than requiring new infrastructure or programming.

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