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Evaluating the prevalence of early weaning of children and its determinants among maternal attendees at Remera Health Center, Kigali, Rwanda, 2023: a cross-sectional study

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ABSTRACT

INTRODUCTION: While breast milk is vital in fostering infant growth and diminishing the risk of illnesses, global exclusive breastfeeding rates stand at 45.7%. Early weaning remains a persistent issue, particularly in low- and middle-income countries. Consequently, this study was formulated to evaluate the prevalence of early weaning and its influencing factors among mothers seeking care at the Remera Medicalized Health Center.

METHOD: A cross-sectional investigation encompassed 370 randomly chosen breastfeeding mothers who underwent data collection via a structured questionnaire.

RESULTS: In the cohort of 370 participants, this study unveiled that 97.8% (n=362) concurred on the importance of exclusive breastfeeding, yet only 73.8% (n=263) adhered to this practice. Notably, 26% (n=97) initiated early weaning. Breastfeeding challenges were reported by 51.6% (n=191) of participants, with 21.6% (n=80) facing issues of low milk supply and 8.1% (n=30) experiencing child refusal to breastfeed. Furthermore, 90.8% (n=336) demonstrated awareness of the consequences of early weaning, and 33.5% (n=124) acknowledged agreement with all the potential repercussions. Among mothers who practiced early weaning, 29.9% (n=29) did so at 4 months, 25.9% (n=25) at 5 months, 21.6% (n=21) at 3 months, and 11.3% (n=11) at 1 and 2 months. Reasons for early weaning included tight schedules (43.3%, n=42) and the baby's hunger (36.1%, n=35). Additionally, 77.6% (n=287) concurred that the choice of early weaning should ultimately be the mother's decision.

CONCLUSION: The primary factors influencing mothers' adoption of early weaning were predominantly their demanding schedules, which encompassed both work and studies, as well as the baby's heightened need for food owing to hunger

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INTRODUCTION

The World Health Organization (WHO) states that weaning as complementary feeding, beginning when breast milk alone is insufficient to meet newborns' nutritional needs and additional foods and liquids are needed in addition to breast milk [1]. However, Early weaning is the interruption of breastfeeding in the first six months of life [2]. Breastfeeding is the act of feeding a baby with a

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mother's breast milk. The practice of only giving breast milk to an infant for the first six months of life without any other food or liquid other than medication is known as Exclusive breastfeeding [3]. Breastmilk is the ideal food for infants. For a baby to grow and develop to its full potential, the baby needs the right foods at the right time. The crucial time for good nutrition of a baby is between the inception of pregnancy of a woman and the second birthday of a child, which is usually referred to as the 'critical window' and which is approximately 1000 days. The best food for a child's growth and development during this critical window is breast milk. Breast milk provides all the vitamins, minerals, enzymes, and antibodies needed by a child to grow and thrive [3]. Breast feeding can be beneficial to the mother, as it helps prevent postpartum hemorrhage, reduces the risk of breast and ovarian cancers, and allows for better spacing of pregnancies among women [3].

In the low-income/middle-income countries, only 39% of children aged less than 6 months are exclusively breastfed, and just about 58% of children 20–23 months old benefit from the practice of continued breastfeeding, which highlights the poor overall breastfeeding practices in the world. Initiation of breastfeeding within the first hour of birth may lead to the prevention of about 20% of neonatal deaths. In low-income/middle-income countries, optimal breastfeeding has the potential of preventing 12% of all under-5 deaths [3].

WHO advises mothers to practice exclusively breastfeeding (EBF) for six months and continue to breastfeed along with complementary foods for two years or longer [4]. In many places around the world, women breastfeed their children for over two years. However, contrary to WHO recommendations, fewer than half of infants under 6 months old are exclusively breastfed [3].

Globally, 45.7% of infants are exclusively breastfed before six months, 32.0% are exclusively breastfed at 4-5 months [5]. In Kigali, the prevalence of EBF for the entire first six months was 55.7%. EBF reduces progressively from birth, where it is 85.1%, 81.9%, and 57.5% at 1 month, 3 months, and 5 months respectively. Breastfeeding is initiated within the first hour of life at a rate of 80.5%, and breast milk is the predominant type of feeding given to the baby first after delivery at 89.6% (198/221). Other types of first feeds include formula milk (8.1%), sugary water (1.4%) and juice (0.9%). Early initiation (before six months) of complementary feeding was found to begin as early as age one month at a rate of 7.7% (17/221) while 24.4% (54/221) of mothers start supplementing between four and five months [6]. Some people choose to wean early, and others have to stop breastfeeding before they want to due to a variety of issues like pain, concern over a low milk supply, lack of support, fatigue, return to work or school, breastfeeding difficulty, maternal medical issue, embarrassment and the desire to have another child [7].

Factors frequently associated with early weaning include first pregnancy, low birth weight, pacifier use, maternal difficulty to breastfeed after childbirth, late onset of breastfeeding, lack of EBF awareness in maternity, maternal misunderstanding related to ideal breastfeeding timing under six months, lack of breastfeeding advantages awareness, lack of breastfeeding paternal support, working mothers, tobacco, and alcohol use, maternal young age, and maternal education [2].

Consequently, due to the fact that infants' kidneys and digestive systems are still developing. Asthma, eczema, digestive issues, allergies, and obesity may all become more common in later life if solids are introduced too soon [8]. In addition, for infants, never breastfeeding or early weaning is associated with increased risks of otitis media, diarrhea, lower respiratory tract infection, sudden infant death syndrome, leukemia, and type 1 diabetes [9]. The choice not to breastfeed can moreover unfavorably influence mothers' wellbeing by expanding the hazard of pre-menopausal breast cancer, ovarian cancer, type II diabetes, hypertension, hyperlipidemia and cardiovascular diseases [10]. Despite numerous past studies on breastfeeding practices in Rwanda, none have explicitly delved into examining or assessing the prevalence of early weaning and its associated contributing factors among mothers at Remera Health Center. Consequently, this research aims to fill the existing gap in the literature within the specified area of study, providing valuable data and contributing to the enhancement of weaning practices.

METHODS

Study Design and Sampling Technique: The study was conducted at the Remera Medicalized

Health Center, situated in Gasabo district, Remera sector, Rukiri II, Amahoro Village. Established in 1994, this health center currently caters to a population of 100,000 from three cells of the Kimironko sector, four cells of the Remera sector, and neighboring areas. Utilizing a quantitative, cross-sectional study design, the research focused on mothers with infants below two years of age who availed various services, particularly in vaccination, family planning, and the outpatient department at Remera Medicalized Health Center. The total population for this study was derived as N=2500 based on health center records.

The sample size calculation followed the formula by Bolarinwa (2020), suitable for numerical outcomes, taking into consideration the assumed variance (σ) of 0.5 due to limited local studies on weaning practices. The standard normal deviation at a 95% confidence interval (Z=1.96) and precision level (d=0.05) were used. The initial sample size was calculated as 384, considering an infinite population correction, resulting in an adjusted sample size of 332.87. To account for a 10% non-response rate, the final sample size was adjusted to 370.The sample size calculation formula (Bolarinwa, 2020) [11] appropriate for a numerical outcome (means and variance) of the population of the study is obtained thus:

Where $n=(Z^2\ \sigma^2\ )/d^2$
Z = standard normal deviate at 95% CI assumed at 1.96
σ = is the variance assumed at 0.5 (because of scarce local study on the weaning among mothers)
d =precision level set at 0.05 (5%)
$n= [(1.96)^2 \times (0.5)^2]/(0.05)^2$
=0.9604/0.0025 = 384

To adjust for an infinite population, which means that the total number of weaning mothers at Remera is <10,000, Adjusted n = n/(1+(n/N)) was applied (Bolarinwa, 2020)
Where N = estimated total number mothers with babies less than two years old at Remera Medicalized Health Center = 2500 as reported by the health center.
Therefore, adjusted n = 384/(1+(384/2500)) = 332.87
Lastly, to adjust for the non-response of 10% (P) = n/(1-P)
Final sample size = Sample size = 332.87/((1-0.1)) = 370

Eligibility criteria
This research targeted mothers exclusively attending Remera Medicalized Health Center, accompanied by children below the age of two, who were present during the data collection period and willingly agreed to participate.
Individuals deemed too frail to engage, clients in a rush, and those unable to provide informed consent due to cognitive impairments were excluded from participation in the study.

Study Tool
The study employed a random sampling technique to select 370 mothers who met the inclusion criteria, primarily utilizing the Vaccination, Out-patient, and Family Planning departments to identify the targeted population.
For data collection, a questionnaire consisting of 18 closed-ended questions was developed and administered to each participant. To ensure inclusivity, the questionnaire was translated into the local language (Kinyarwanda). Participants who faced challenges in reading were provided assistance in understanding the questionnaire. Prior to its use in the actual research, the questionnaire underwent a pre-test, during which any necessary corrections were made.

Data analyisis
Descriptive analysis was carried out using the Statistical Package for the Social Sciences (SPSS) version 21 to summarize demographic attributes, breastfeeding practices, and weaning practices. This involved the use of descriptive statistics, bivariate analysis, and logistic regression statistics as part of the methodology.

After the presentation and approval of the research proposal, the College of Medicine and Health Sciences (CHMS)-School of Health Sciences Institutional Review Board (IRB) issued an ethical clearance CMCH/IRB/432/2023.
Subsequently, Permission for the collection of data was sought from Remera Medicalized Health Center Authority. Also, before the commencement of data collection, the study participants were orientated and well informed about the study, we ensured the voluntary participation of respondents in this study, allowing them the freedom to withdraw from the research at any point. Participants provided informed consent before their involvement, and we maintained a commitment to using respectful and non-offensive

language throughout the study.

RESULTS

Characteristics of Respondents

Table 1 outlines the characteristics of respondents, including their social demographic information, knowledge about the essentiality of exclusive breastfeeding, as well as sources of information about early weaning. Among the 370 participants, 50.8% (n=188) fell within the age range of 26-35 years, followed by those whose age range is 18-25 years, constituting 32.4% (n=120). Additionally, 15.4% were aged between 36-45 years, and those aged less than 18 accounted for 1.4% (n=5).

In terms of employment status, the majority, 53.8% (n=199), were unemployed, followed by 30.5% (n=113) who were self-employed. 7.8% (n=29) worked for others, 7% (n=26) were employed by the government or non-government

Table 1: *Characteristics of Respondents*

Variable	Number (n)	Percentage
Age (years)		
< 18	5	1.4
18 – 25	120	32.4
26 – 35	188	50.8
36 – 45	57	15.4
Occupation		
Unemployed	199	53.8
Self-employed	113	30.5
Government/NGO worker	26	7
Works for others	29	7.8
Student	3	0.8
Education		
No formal education	6	1.6
Primary (completed)	43	11.6
Secondary (incomplete)	103	27.3
Secondary (completed)	91	24.6
University	127	34.3
Religion		
Catholic	103	27.8
Protestant	187	50.5
Adventist	56	15.1
Jehovah witness	7	1.9
None	17	4.6
Income/Ubudehe Category		
Category 1	21	5.7
Category 2	238	64.5
Category 3	109	29.5
Category 4	1	0.3

Continued on the next page.....

Table 1: Continued....

Marital status		
Single	52	14.1
Married	314	84.9
Divorced	3	0.8
Number of children		
1	125	33.8
2 – 4	224	60.5
≥ 5	21	5.7
Age of youngest child		
< 3 months	149	40.3
4 - 6 months	85	23
7 - 24 months	136	36.8
4 - 6 months	85	23
7 - 24 months	136	36.8
Exclusive breastfeeding is essential (n=370)		
Agree	362	97.8
Disagree	4	1.6
Unsure	4	1.6
Receive information or guidance about early weaning? (n=370)		
Yes	185	50
No	185	50
Sources of early weaning information (n=184)		
Healthcare professional	134	72.8
Family or friends	22	12
Social media	24	13.6
Others	3	1.6
Social media	24	13.6
Others	3	1.6

organizations, and the least were students at 0.8% (n=3). Concerning educational attainment, 51.9% (n=194) had attended secondary school, with 27.3% (n=103) not completing, and 24.6% (n=91) successfully completing secondary education.

University attendees comprised 34.3% (n=127) of the overall participants. Those who only finished primary school were 11.6% (n=43), and the least were those who never attended any formal education at 1.6% (n=6). Marital status indicated that the majority, 84.9% (n=314), were married, 14.1% (n=52) were single, 0.8% (n=3) were divorced, and 0.3% (n=1) were widowed.

Regarding religion, 50.5% (n=187) were Protestants, 27.8% (n=103) were Catholics, 15.1% (n=56) were Adventists, 4.6% (n=17) did not belong to any religion, and 1.9% (n=7) were Jehovah's Witnesses. In terms of Ubudehe category, 64.5% (n=238) were in category 2, 29.5% (n=109) were in category 3, 5.7% (n=21) were in category 1, and 0.3% were in Ubudehe category 4.

Additionally, the majority of participants (60.5%, n=224) had 2 to 4 children, 33.8% (n=125) had only 1 child, and the remaining 5.7% (n=21) had more than 7 children. For instance, 40.3% (n=149) of the participants' youngest children were less than 3 months old, 36.8% (n=136) were in the range of 7-14 months, and 23% (n=85) were in the age

Table 2: *Breastfeeding Challenges*

Variable	Number (n)	Percentage
Challenges or difficulties in breastfeeding		
Sore nipples		
No	370	100
Yes	0	0
Low milk supply		
No	290	78.4
Yes	80	21.6
Child refuse to breastfeed		
No	340	91.9
Yes	30	8.1
Feelings of sadness or depression		
No	347	93.8
Yes	23	6.2
Dealing with judgements		
No	370	100
Yes	0	0
No challenge		
No	191	51.6
Yes	179	48.4

range of 4-6 months. Furthermore, 97.8% (n=362) acknowledged that exclusive breastfeeding is paramount. On the other hand, 1.6% (n=3) never considered exclusive breastfeeding to be significant, with the same percentage of participants who don't know whether it is significant or not. The participants who have and those who have not received any information about early weaning are in the same ratio of 50% (n=185). From those who have obtained information about early weaning, 72.8% (n=135) obtained it from healthcare professionals, 13.6% (n=24) from social media, 12% (n=22) from family or friends, and 1.6% (n=3) from other unspecified sources.

Challenges Encountered During Breastfeeding among the Respondents

Table 2 illustrates the challenges or difficulties encountered by breastfeeding mothers at Remera Health Center. The majority of participants, 51.6% (n=191), had experienced some challenges or difficulties during breastfeeding. For instance, 21.6% (n=80) had encountered issues related to low milk supply, 8.1% (n=30) reported instances where their child refused to breastfeed, and 6.2% (n=23) felt sadness or depression while breastfeeding. On the other hand, none ever reported having sore nipples or dealing with judgments about ceasing breastfeeding.

The Knowledge Regarding Consequences of Early Weaning

Table 3 presents the perceived consequences that mothers associate with practicing early weaning. Out of the 370 participants, 90.8% (n=336) were aware of certain outcomes linked to early weaning. Specifically, 33.5% (n=124) concurred with all the consequences, including increased digestive problems, risks of allergies, lack of breast milk nutrients, risks of obesity, risk of respiratory problems, and choking. On the other hand, some mothers agreed with specific consequences as follows: digestive issues 44.3% (n=165), lack of nutrients from breast milk 30.5% (n=113), increased risk of allergies 28.9% (n=107), choking 25.5% (n=87), risk of obesity 12.7% (n=47), risk of respiratory diseases 11.9% (n=44) and 9.2% did not know any consequence of early weaning.

Table 3: *Knowledge Regarding Consequences of Early Weaning*

Variable	Number (n)	Percentage (%)
Potential risks or challenges associated with early weaning		
Digestive issues		
No	206	55.7
Yes	164	44.3
Increased risk of allergies		
No	263	71.1
Yes	107	28.9
Lack of nutrients from breast milk		
No	257	69.5
Yes	113	30.5
Risk of obesity		
No	323	87.3
Yes	47	12.7
Risk of respiratory diseases		
No	326	88.1
Yes	44	11.9
Chocking		
No	283	76.5
Yes	87	25.5
All correct		
No	246	66.5
Yes	124	33.5
None is correct		
No	17	4.6
Yes	353	95.4
I don’t know		
No	336	90.8
Yes	34	9.2

The Prevalence, Time, Reason, and Weaning Choice

Table 4 and Figure 1 delineate the prevalence, timing, mothers' awareness of the period to commence weaning, and their preferences regarding the choice for weaning. Out of the 370 participants, 26% (n=97) practiced early weaning fig.1, indicating that only 73.8% (n=263) adhered to exclusive breastfeeding. Among mothers who initiated early weaning, the majority (29.9%, n=29) did so at 4 months of age, followed by 25.9% (n=25) at 5 months, 21.6% (n=21) at 3 months, and 11.3% (n=11) at 1 and 2 months. Many attributed tight work or study schedules (43.3%, n=42) and the baby's hunger or increased demand for food (36.1%, n=35) as the primary factors for early weaning. Other factors include the presence of a medical condition (13.4%, n=13), availability of food (8.2%, n=8), perception that the baby was ready for solid foods (3.1%, n=3), and pressure from family or friends (2.1%, n=2). None reported starting food supplementation before six months

Table 4: *Time, Reasons, and Weaning Choice*

Variable	Number (n)	Percentage (%)
Age at introduction of complimentary feeding		
4-<6 months	10	2.7
6 months	326	88.8
≥6 months	31	8.5
Month started weaning before 6 months		
1 month	11	11.3
2 month	11	11.3
3 month	21	21.6
4 month	29	29.9
5 month	25	25.9
Reason for weaning (n=97)		
Pressure from family or friend	2	2.1
Advice from healthcare professionals	0	0
Baby's hunger or increased demand for food	35	36.1
Tight schedule of work or study	42	43.3
Perception that the baby was ready for solid foods	3	3.1
Cultural or traditional beliefs	0	0
Personal experience	0	0
Food availability	8	8.2
Medical condition	13	13.4
Mother's death	0	0
Choice for starting weaning		
Specific guidelines	287	77.6
Individual choice	73	19.7
I don't know	10	2.7

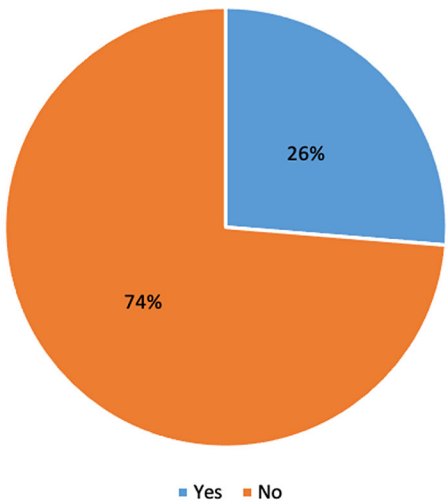

Figure 1: *Prevalence of early weaning; did you introduce any complementary foods or liquids before six months of age? (n=370)*

Table 5: *Bivariate association of socio-Demographic, Maternal and Child Characteristics and early weaning*

	YES		NO		Chi-square	*p*-Value
Variable	**N**	**%**	**N**	**%**		
Age					25.485	<0.001**
< 25 years	19	19.6	105	38.6		
26 - 35	49	50.5	139	51.1		
36 - 44	29	28	28	10.3		
Occupation					14.145	<0.001**
Unemployed	37	38.1	164	60.3		
Employed	60	61.9	108	39.7		
Education					1.875	0.171
Less than secondary	34	35.1	117	43		
Secondary or University	63	64.9	155	57		
Marital status					0.804	0.37
Not married	12	12.4	44	16.2		
Married	85	87.6	228	83.8		
Income/Ubudehe category					5.418	0.020*
1 - 2	59	60.8	199	73.4		
3 - 4	38	39.2	72	26.6		
Religion					0.09	0.764
None	5	5.2	12	4.4		
Christianity	92	94.8	260	95.6		
Number of children					13.027	<0.001**
1	19	19.6	105	38.6		
2 - 4	69	71.1	155	57		
≥ 5	9	9.3	12	4.4		
Age of youngest child					3.809	0.149
< 3 months	32	33	117	43		
4 - 6 months	28	28.9	57	21		
7 - 24 months	37	38.1	98	36		
Age at introduction of complementary foods					15.685	<0.001**
4 - <6 months	80	84.2	245	90.4		
6 months	8	8.4	2	0.7		
> 6 months	7	7.4	24	8.9		
Knowledge of Early weaning consequences					0.343	0.558
Have knowledge	30	30.9	93	34.2		
Do not know	67	69.1	179	65.8		
Choice for early weaning					1.413	0.493
Specific guidelines	71	73.2	215	79		
Individual choice	23	23.7	50	18.4		
I don't know	3	3.1	7	2.6		

**Significant at p≤0.05, **Highly significant at p<0.01*

due to advice from healthcare professionals, cultural or traditional beliefs, personal experience, or the mother's death.

Regarding the weaning choice, 77.6% (n=287) concurred that the decision on when to start weaning a baby should not solely be the mother's choice; rather, specific guidelines should be in place. Only 19.7% (n=73) reported that it should be the mother's choice, and 2.7% (n=10) didn't know whether it might be the mother's choice or if there should be specific guidelines.

Association between Socio-Demographic factors, Maternal and Child Characteristics and Knowledge Related to the Consequences of Early Weaning

Table 5 presents the likelihood of early weaning relative to specific variables. Regarding socio-demographic factors, the findings indicate that age, occupation, number of children, and awareness regarding the appropriate age to commence weaning are significant factors positively associated with the probability of early weaning, all demonstrating statistical significance with a p-value of p<0.001. In contrast, factors such as income/Ubudehe category were only slightly associated with early weaning (p=0.020), while factors found to have no relationship with early weaning include education status (p=0.171), marital status (p=0.37), religion (p=0.764), age of the youngest child (p=0.149), knowledge of early weaning consequences, and the choice for early weaning (p=0.493)

Factors Associated with Early Weaning

According to Table 6, women aged 36-44 are 3.71 times more likely to practice early weaning (AOR=3.71, 95% CI: 1.48-9.28, P=0.005) than those aged 25 or younger. Employed mothers also have a 1.92 times higher likelihood of practicing early weaning (AOR=1.92, 95% CI: 1.14-3.24, p=0.014) compared to those who are unemployed. The number of mothers aware that food should be introduced at six months (AOR=15.08, 95% CI: 2.94-77.34, P=0.001) is 15.08 times higher than those aware that food can be offered earlier. There

Table 6: *Factors Associated with Early Weaning*

Variable	COR (95% CI)	*p*-value	AOR (95% CI)	*p*-value
Age (years)		<0.001**		0.011*
< 25	1		1	
26- 35	1.95 (1.08-3.51)	0.026*	1.38 (0.69-2.75)	0.362
36- 45	5.72 (2.81-1168)	<0.001**	3.71 (1.48-9.28)	0.005*
Occupation				
Unemployed	1		1	
Employed	2.46 (1.53-3.97)	<0.001**	1.92 (1.14-3.24)	0.014*
Income/Ubudehe category				
1- 2	1		1	
3- 4	0.56 (0.35-0.92)	0.021*	1.39 (0.81-2.37)	0.234
Number of children		0.002*		0.597
1	1		1	
2- 4	2.46 (1.40-4.33)	0.002*	1.41 (0.72-2.77)	0.311
≥ 5	4.15 (1.54-11.19)	0.005*	1.46 (0.42-5.01)	0.55
Age at introduction of complementary foods		0.007*		0.005*
4- <6 months	1		1	
6 months	12.24 (2.55-58.83)	0.002*	15.08 (2.94-77.34)	<0.001**
> 6 months	0.89 (0.37-2.15)	0.801	0.89 (0.35-2.22)	0.795

**Significant at p≤0.05, **Highly significant at p<0.01*

is not much difference between being in different economic categories. For example, participants in categories 3 and 4 (COR=0.56, 95% CI: 0.35-0.92) are 0.56 times as likely to practice early weaning compared to those in categories 1 and 2.

DISCUSSION

In Rwanda, despite numerous efforts to reduce early weaning prevalence, a significant proportion of breastfeeding mothers attending Remera Health Center continue to face challenges leading to early weaning. Identifying and addressing these issues is essential for developing targeted interventions and support mechanisms. This study sheds light on crucial challenges faced by breastfeeding mothers, emphasizing the need for tailored strategies.

The findings reveal that 51.6% of participants encountered various obstacles during their breastfeeding journey. Notably, prevalent challenges included low milk supply, child refusal to breastfeed, and maternal feelings of sadness or depression. Specifically, 21.6% of participants identified low milk supply as a significant concern, mirroring a common issue among breastfeeding mothers globally.

Low milk supply may stem from factors such as inadequate latch, maternal stress, or medical conditions affecting milk production. Addressing these underlying issues is imperative for improving the overall breastfeeding experience for mothers attending Remera Health Center. Targeted interventions aimed at enhancing latch techniques, providing stress management support, and addressing maternal emotional well-being can contribute significantly to overcoming these challenges and promoting successful breastfeeding outcomes [12]. Therefore, interventions aimed at addressing these underlying causes can contribute to improving breastfeeding success.

The reported instances of children refusing to breastfeed (8.1%) highlight a potential barrier to exclusive breastfeeding. Strategies such as promoting proper latch techniques and addressing infant oral issues may prove beneficial in overcoming this challenge [13]. Additionally, maternal emotional well-being, as evidenced by 6.2% experiencing sadness or depression while breastfeeding, emphasizes the need for comprehensive support systems and mental health resources for breastfeeding mothers [14]. However, none of the participants reported sore nipples or judgments about ceasing breastfeeding. This suggests that Remera Health Center might have a good program geared at encouraging breastfeeding and discouraging early weaning.

This study demonstrates a substantial awareness among participants regarding the consequences of early weaning. Future measures could focus on providing comprehensive information to mothers, in order to bridge the gap in knowledge, and, thereby, promoting the benefits of exclusive breastfeeding during the recommended period. This is evident where mothers were associated with practicing early weaning, reflecting their awareness and understanding of potential outcomes. Out of the 370 participants, a substantial majority of 90.8% (n=336) were aware of certain consequences linked to early weaning. The findings reveal that 33.5% (n=124) of mothers were well-informed about all the consequences listed, which included increased digestive problems, risks of allergies, lack of breast milk nutrients, risks of obesity, risks of respiratory problems, as well as choking. This suggests a comprehensive awareness among this subgroup of mothers regarding the potential risks and challenges associated with early weaning. Specifically, the most commonly acknowledged consequence was digestive issues, with 44.3% (n=165) of participants expressing concern. This is in line with existing literature highlighting the impact of early weaning on gastrointestinal health, potentially leading to digestive discomfort in infants [15]. Furthermore, 30.5% (n=113) recognized the lack of essential nutrients from breast milk as a consequence, emphasizing the importance of breastfeeding in providing optimal nutrition during the early months of life [13]. The participants also identified increased risks of allergies (28.9%, n=107), choking (25.5%, n=87), risk of obesity (12.7%, n=47), and risk of respiratory diseases (11.9%, n=44) as potential consequences of early weaning. These findings align with existing research that highlights the role of breastfeeding in reducing the incidence of allergies, promoting proper development, and protecting against respiratory infections, as well as atopic infections [14,16,17]. In contrast, a study conducted in low- and middle-income nations found no correlation between early weaning and blood pressure, cholesterol, or allergic illnesses like asthma [12]. Although, 9.2% of participants did not know any consequences of early weaning. This highlights the need for targeted educational interventions to ensure that all mothers are well-informed about the potential risks associated

with early weaning, thus enabling them to make informed decisions for their infants' health and well-being.

This study uncovered a prevalence of early weaning in this population, reaching 26.3%, with the majority opting to wean their babies at 4 months. One potential explanation for this trend is the conclusion of maternal leave at three months, posing a challenge for mothers to sustain breastfeeding upon their return to work. These findings are consistent with a recent study conducted in Kigali, which observed a gradual decline in exclusive breastfeeding prevalence from birth to 5 months. This decline may be attributed to heightened demand for baby food and maternal perceptions of breast milk insufficiency as the infant ages. [6].

The higher prevalence of early weaning in our study may be attributed to the fact that a significant proportion of breastfeeding mothers, particularly those aged 36-45 years old, are employed and have 2-4 children, leading to busy schedules and possibly normalizing early weaning practices based on past experiences as similar to the study done in united states and found that employment can impact the initiation, duration, and exclusivity of breastfeeding where the weaning rates were higher for women who went back to work before 12 weeks than for those who went back to work after 12 weeks or for those who stayed at home [18,19]. For example, tight work or study schedules emerged as primary obstacles, compelling mothers to introduce complementary foods before the recommended period, and mothers working in institutions far from home faced difficulty in finding time for frequent breastfeeding, prompting them to opt for early supplementation. Practicing early weaning as a result of employment was also concluded in the study done in Britain and Ireland, where they found that women employed full-time were less likely to initiate breastfeeding than mothers who were not employed/students [20]. In relation to the study done in Australia where they found that duration of breastfeeding is independently, negatively associated with early return to work [21]. Similar findings were reported in studies conducted in Turkey and Wajir County Referral Hospital, emphasizing low milk production as a common reason for early weaning [22, 23]. A study in Rwanda also highlighted the influence of employment as having a negative effect [6].

This study revealed no significant relationship between cultural beliefs and early weaning practices among the participants. This could be explained by the fact that Rwandan culture generally discourages early weaning [24]. Contrarily, a study conducted in Uganda revealed myths about exclusive breastfeeding persisting due to cultural beliefs [15], as same as a study done in Turkey, which found that sore nipples, societal judgments, and cultural or traditional beliefs triggered mothers to initiate early weaning [12].

Numerous investigations have pinpointed factors linked to early weaning, encompassing aspects such as first pregnancy, low birth weight, pacifier use, challenges in breastfeeding post-childbirth, delayed initiation of breastfeeding, absence of exclusive breastfeeding in the maternity period, maternal misconceptions regarding the optimal breastfeeding duration within the first six months, limited awareness of breastfeeding benefits, insufficient paternal support for breastfeeding, maternal employment, tobacco and alcohol consumption, young maternal age, and educational level [2, 6, 22, 23, 25, 26]. Our study aligns with these established findings, underscoring that age, occupation, number of children, and awareness regarding the recommended age to commence weaning are robustly associated with early weaning.

Using the cross-sectional study design, this study is limited in making a causal inference. Moreover, this study was conducted at a single health center, which might limit the generalizability of the findings countrywide. Therefore, longitudinal studies extending to multiple settings are recommendated to further explore determinants associated with early weaning.

CONCLUSION

The study at Remera Health Center in Rwanda highlights persistent challenges and factors contributing to early weaning despite ongoing breastfeeding promotion efforts. Common obstacles faced by participants included issues like low milk supply, child refusal to breastfeed, and maternal emotional well-being concerns. The absence of reported sore nipples or judgments about ceasing breastfeeding suggests effective programs at Remera Health Center encouraging breastfeeding and discouraging early weaning.

The study revealed substantial awareness among participants about the consequences of early weaning. The prevalence of early weaning in the studied population may be attributed to factors such as concluding maternal leave at three months, busy schedules of employed mothers with other children, and normalization of early weaning practices based on past experiences.

There was no significant relationship between cultural beliefs and early weaning practices among participants. Nevertheless, the study contributes to a broader understanding of early weaning factors, emphasizing the strong association of age, occupation, number of children, and awareness regarding the recommended age to commence weaning.

Addressing breastfeeding challenges, promoting comprehensive awareness, and tailoring interventions to the socio-cultural context are crucial steps in mitigating early weaning. By implementing targeted strategies and fostering a supportive environment, health systems can significantly enhance the breastfeeding experience for mothers at Remera Health Center, contributing to the broader goal of promoting optimal infant nutrition and well-being.

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