

Infant Care Practice and Associated Factors Among Rural Women in Pawi District, Beneshagul Gumuz, Northwest Ethiopia

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Abstract: *Background:* Infant care is vital for the proper growth of the infant and healthy infant life. Any damage caused during infant leads to impaired cognitive development, malnutrition, poor growth and development, compromised educational achievement, and low economic productivity. Therefore, knowing care practice and associated factors of infant care can provide crucial support to meet the Sustainable development Goal. A limited previous study in Ethiopia related infant care practice including pawi district related to infant care practice and associated factors. This study gave baseline information related to infant care practice and associated factors in rural women of pawi district. *Objective:* This study aims to assess infant care practice and associated factors among rural mothers in pawi, district Benishangul Gumuz Region Northwest Ethiopia 2021. *Method:* A community-based cross-sectional study was conducted among rural women pawi district that have an infant in the study period from May 01/2021 to June 01/2021. A total of 362 mothers who had infants is included in the study using a simple random sampling technique. The data were collected using a structured questionnaire. The data was cleaned, checked for completeness, and entered into Epi Data-V.3.1, and exported to SPSS version 23 for analysis. Then, the data were analyzed using descriptive statistics, bivariate, and multivariable logistic regression analyses were performed, and identify factors associated with infant care practice with P-value less than 0.05 were taken as statistically significant. *Result:* A total of 361 mothers were included in this study with response rates of 99.7%. 47.73% had good infant care practice. Family size more than five AOR=1.803 (1.060, 3.065), who attended last delivery (TBA) AOR=3.198 (1.158, 8.828), antenatal care follows up AOR=2.104 (1.331, 3.327), advised during ANC visited AOR=2.371 (1.314, 4.279) and information about infant bath (AOR=1.855 (1.221, 2.818) were significantly associated with poor infant care practice. *Conclusion and recommendation:* In this study, poor infant care practice was high and infant care practice was found to be significantly associated with mother educational status, mother occupational status, family size, assist during delivery, ANC follows up, advised during ANC follows up, information about infant bath, and information about initiation breastfeeding. So, to improve the knowledge of mother caregivers about infant care and health extension worker should intensify the education about infant care. More ever mothers during antenatal follow up should be strongly advised about infant care.

Keywords: Infant Care Practice, Infant, Care, Practice, Pawi, Ethiopia

1. Introduction

Infant care refers to the social welfare service concerning support for nursery facilities and home fostering, taking care and nurturing for infants healthily and safely while providing them with the education that is suitable for their mental and physical development and includes cleanliness, thermal safety,

breastfeeding, immunization, disease management, and care for low-birth-weight infants has made recommendations [1, 2].

For optimal infant care and feeding, initiation of breastfeeding within one hour and exclusive breastfeeding for the first six months, as well as healthy complementary foods with dietary diversity, are strongly linked to increased infant survival and reduced risk of illness, especially

diarrheal disease and other infections [3, 4].

World Health Organization (WHO) has come up with a set of guidelines about, Essential care practices which are evidence-based cost-effective measures to improve child outcomes. This guideline is to be used by all stakeholders who engaged with the infant including the health care providers and mother, community, and government [5-7].

The antenatal and postnatal period is cost-effective that improve maternal health and save mothers' lives can save most infant too and early and exclusive breastfeeding, keeping warm, hygiene, cord care, immunization, treatment during illness and complementary feeding are the recommended care to be given for all infant care [8-10].

The infant is a critical bridge between mother and child care and central to the paradigm of the continuum of care linking mother, child, and infant care [11-13]. Infant mortality is one of the leading public health problems globally; the problem is even more staggering in low-income countries. In Sub-Saharan Africa, infant mortality has declined from 182 to 58 deaths per 1000 live births from 1990 to 2017 [14].

Infant mortality accounts for approximately two-thirds of all children under-five mortality worldwide. 99% of these deaths occur in middle- and low-income countries with half of the deliveries occurring at home [15]. Infant care is very important in preventing deaths, particularly essential care of the normal infant to prevent illness, extra care of low birth weight babies, and access to quality emergency care for a sick newborn [16-18].

According to UN inter-agency group child mortality estimation in 2015, Ethiopia has a huge homework to achieve Sustainable development Goal by 2030 which expect all countries aiming to reduce infant mortality to at least as low as 12 deaths per 1,000 live births and under-five mortality as 25 deaths per 1,000 live births been proposed as an SDG target under goal 3, which seeks to ensure healthy lives and promote wellbeing at all ages [15]. The causes of infant mortality are not well documented in Ethiopia, but different studies report causes such as sepsis, asphyxia, birth injury, tetanus, preterm birth, congenital malformations, and unknown causes [20].

In a study conducted in China, Early initiation of breastfeeding was only 22.4%, exclusive breastfeeding for 6 months was less than 10% [24] and the study conducted in Nepal shows that 41.4%, 53%, and 43% initiated breastfeeding within the first hour of birth, practiced exclusive breastfeeding, and initiated timely complementary feeding (CF) at six months, respectively [25] and studies in Uganda shows that 60.7% [26].

In a study in rural Bangladesh, Complementary feeding initiation was early for 7%, timely for 49%, and late for 44% of infants. Only 19% of mothers knew the WHO recommended age for complementary feeding initiation [30].

According to EDHS 2016, the trend of infant mortality is decreased from 77 deaths per 1,000 live births in the 2005 EDHS, 48 in 2016, and 43 deaths per 1,000 live births in the 2019 EMDHS [22]. EDHS 2016 shows the infant mortality

rate in Benishangul Gumuz region stat is 62 per 1000 live births. This shows that infant mortality in Benishangul Gumuz was high when we compare it with other regions [22]. Moreover, there are cultural barriers such as fear of exposing the infant to perceived harmful factors. Families believe that medicine does not exist for infants at health facilities as they are too small to be given medicine, at all. Hence, reaching sick young infants is not sufficiently addressed [23].

In the study conducted in boditi Ethiopia, 95.3% of participants heard about Exclusive breastfeeding and 49.9% of them mentioned community health workers as their primary source of information [27]. And another study was done in Gonder Suriya district Ethiopia women (84.39%) has aware of postnatal care [40].

Study in Gulomekda Tigray participants had 92.9% had the good practice of essential infant care [29] and other Study in Madura northwest Ethiopia who gave births within one year, (40.6%) of them had good infant care practice [19].

Assessment of a mother's infant care practice was one of the keys prerequisite information required in designing a strategy that can improve infant health outcomes and end the preventable causes of infant morbidity and mortality. Therefore, the finding from this study could be used as baseline information to plan appropriate interventions towards improving infant health care services in the pawi health office.

In addition to that, Infant mortality not significantly decreases in our country Ethiopia including Benishangul Gumuz regional state. Therefore, understanding infant care practices at the community level are necessary to design and prioritize interventions to reduce infant morbidity and mortality.

The objective this studies was assessing infant care practice and associated factors among rural women in pawi district Benishangul Gumuz Region Northwest Ethiopia in 2021.

2. Method

2.1. Study Design, Area and Period

A community-based cross-sectional quantitative study design was conducted in pawi district; Benishangul Gumuz regional state northwestern Ethiopia. The total population size of the district is estimated to be 68, 122, and 35,287 of the females. The Estimates numbers of reproductive age group women were 15,539 and total women who gave birth less than one year are 1694. Preventive services such as antenatal, delivery, postnatal care, and the total maternal health coverage was 84%.

2.2. Source Population and Study Population

All Rural Mother who had an infant and living within the preceding one year in pawi woreda Benishangul Gumuz Ethiopia.

All randomly selected rural mothers who gave live births within one year in the kebeles.

2.3. Inclusion and Exclusion Criteria

Rural women who had infants less than one-years old and lived in the selected kebeles were included in the study.

Mothers who were critically ill, but there is do not get mother ills during data collection period.

2.4. Sample Size Determination

The maximum sample size is determined using a single population proportion formula based on the following assumption; 95% confidence, previously study sick infant-feeding practice 68.9% (41) and a precision of 5% and the after adding 10% for the non-response, the total sample size of 362

2.5. Sampling Procedure and Tool

From 17 rural kebeles in paw district nine rural kebeles were selected by lottery method. Study participants were allocated to each kebele proportionally. To select study participants from each kebele, simple random sampling was employed. When more than one mother within the same household is found, the lottery method was used to select only one mother If the eligible mother is absent from the house at the time of data collection,

Data collection tools development is mainly based on the issues the study on infant care practice to investigate. An

interviewer-administered structured questioner was first prepared in the English version and it is translated to a local language, Amharic again translated back to the English language to check the consistency.

2.6 Variables

2.6.1. Dependent Variables

Infant car practice.

2.6.2. Independent Variables

Socio-demographic and socio-economic factors.

Maternal age, education status, Marital status, Occupational status and Family size.

Maternal knowledge.

Time of exclusive breastfeeding, Infant danger sign, Infant treatment during illness and Place of delivery.

Maternal health service-related factor.

Antenatal care and postnatal care.

2.7. Operational Definitions

Infant care practice: In this study the combination of the five infant care practices as described, Early initiation of breastfeeding practice, Thermal care practice, Safe cord care practice, Sick infant feeding practice, and treatment during illness care practice (Table 1).

Table 1. Description of Explanatory Variables the above Operational definition to say good or poor infant care practice (1-5).

Variable	Definition	Measurement
Early initiation of breastfeeding	Mothers initiating breastfeeding to infants following delivery within one hour of life.	If the mother feed breast her infant within one hour after birth=yes (1). If mother feeds breast her infant after one hour of birth=no (2).
Baby bath	Avoidance of bathing before 24 hrs. of delivery and well wrapping of infant whole body particularly the head with a dry cloth.	If mother bath her infant after 24 hrs.=yes (1). If mother bath her infant within 24 hrs.=no (2).
Cord care	Keeping the cord clean and dry without the application of any foreign substances until the umbilical stump falls off.	If the mother does not apply any material on her infant cord=yes (1). If mother applies any material on her infant cord=no (2).
Sick infant feeding	additional to the normal feeding increase fluid intake during illness, including more frequent breastfeeding, and encourage the infant to eat soft, varied, appetizing, favorite food	If mother feeds her infant more than normal feeding during illness=yes (1). If a mother feeds her infant less or equal to normal feeding during illness=no (2).
Treatment during illness:	The mother or caregiver takes her infant to health facilities immediately for treatment during illness.	If mother take her infant to a health facility during illness=yes (1) If the mother not takes her infant to a health facility during illness=no (2).
Good infant care practice		Those mothers who report three or above mentions the question for infant care practice=yes (1).
Poor infant care practice		Those mothers who report less than three mention questions infant care practice=no (2).

2.7.1. Good Knowledge on Infant Care Practice

Those mothers who respond correctly to three or more knowledge-related questions on infant care practice.

2.7.2. Poor Knowledge on Infant Care Practice

Those mothers who respond correctly less than three of knowledge-related questions on infant care practice.

2.8. Data Processing and Analysis

Data were checked, coded, and entered to Epi data version 3.1 and exported to SPSS (Statistical Package for Social science) version 23 for analysis. Data entries were made by the principal investigator. Bivariate analysis is used to examine the association between dependent and independent

variables. All variables with $p < 0.2$ in Bivariate analysis are taken to the multiple logistic regression model to identify potential factors independently associated with infant care practice. Significance is obtained at Odds ratio with 95% CI and value < 0.05 .

2.9. Data Quality Management

To assure the data quality high emphasis on designing data collection instruments. Before starting the actual survey was translated into an Amharic questionnaire and pretested on 10% of the sample size outside the study area with the same setting before the actual data collection. Two-day orientation was given to the data collector and supervisor. Data were checked and cleaned daily during data collection to assess the completeness of questionnaires.

2.10. Ethical Consideration

Ethical clearance was obtained from Jimma University institute of health, and a Letter of permission was secured from Woreda health offices. Informed consent was obtained

from each study subject before the interview after the purpose of the study is explained to the respondent. Confidentiality of the information is assured and the privacy of the respondent is maintained by removing personal identities.

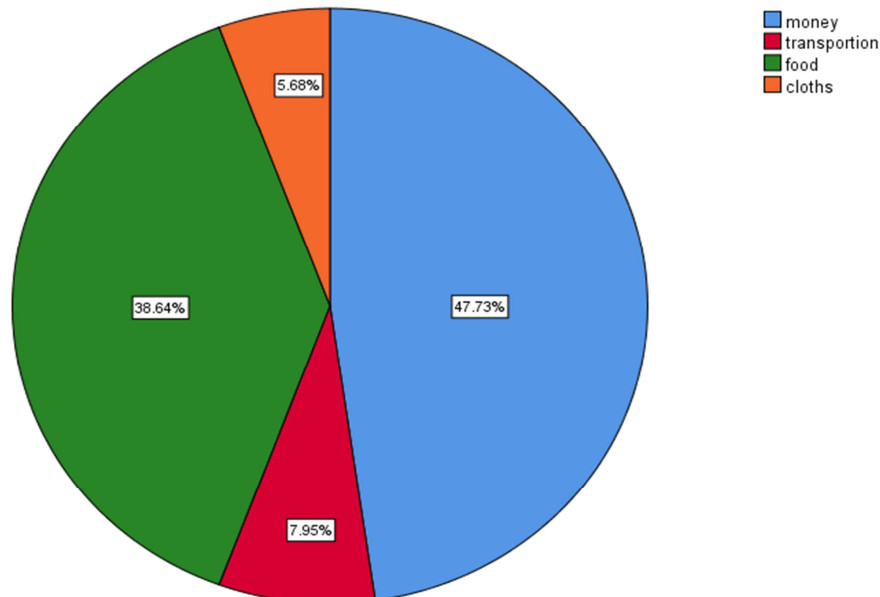


Figure 1. Types of preparation for delivery among rural women in pawi district Benishangul Gumuz northwest Ethiopia in 2021.

3. Result

3.1. Socio-demographic Characteristics of Respondents

A total of 361 women responded to the questionnaire, yielding a response rate of 99.7%. The mean age of respondents was 30.76 years (30.76 ± 1.18). About 110 (30.5%) were aged between 30-34 years. The majority 255 (70.6%) of the respondent were married. The ethnicity of the respondent 252 (69.8%) was Amhara, followed by Kambata 58 (16.1%).

More than half of the respondents were religious or were Orthodox 52.4% and the Occupation of the respondents 197 (54.6%) were housewives. Regarding the educational status of the respondents, 129 (35.7%) have un able to read and write. The family size of the respondents was, 167 (46.3%) greater than five family size and 125 (34.6%) was greater than six family size. The income of the respondents was 274 (75.9%) no income.

3.2. Use Maternal Health Serves Related Infant Care Practice

Out of the total study participants, 240 (66.5%) were delivered in a government health institution, and delivery assistance 253 (70.1%) of them were assisted by nurse/midwife (Skill provider), 41 (11.4%) and assisted by TBA (Table 2). Regarding ANC 230 (63.7%) visited, among this 76 (33%) visited three times and 139 (60.2%) advice about infant care during ANC follows up (Table 2).

Table 2. Use of maternal health serves of respondents among rural women pawi district in Benishangul Gumuz northwest Ethiopia 2021.

Variable	Frequency	Percent (%)
where you deliver your infant		
In-home	94	26.0
In gov't institution	240	66.5
Private health institution	9	2.5
Health post	15	4.2
Other	3	0.8
Total	361	100.0
who attend during the last delivery		
Nurse/midwife	253	70.1
Health assistant	12	3.3
TBA	41	11.4
No assistance	22	6.1
Friend	21	5.8
Other	12	3.3
Total	361	100.0
Antenatal service (ANC)		
Yes	230	63.7
No	131	36.3
Frequency of ANC visit		
Once	29	12.6
Two time	61	26.5
Three-time	76	33.0
Greeter than four	58	25.2
Not rambler	6	2.6
You have ever been informed /advised about infant care for the baby during ANC		
Yes	139	60.2
No	92	39.8

3.3. Maternal Knowledge Related to Infant Care Practices

Among the total study participants, 182 (50.4%) mothers had Information heard about infant care practices. Concerning knowing the types of care 96 (53%) were Exclusive breast-feeding, 63 (34.8%) was the detection of danger sign and 22 (12.2%) were Treatment during illness. About the majority of 238 (65.9%) of the respondents did not know about the information on when to start breastfeeding after birth that the infant should initiate breast milk within an hour of birth. 196 (54.3%) of women' not know about first breastfeeding (colostrum's)

of the women replied that the infant should initiate breast after one hour after birth. From the Majority of women 127 (35.2%) reported had not exposed the infant to sunlight after birth. time of first bathing of the infant, only 168 (46.5%) of the respondents had do not know about the information on when to bathe the infant. The majority of the respondent 203 (56.2%) were poor knowledge of mother for infant care practice.

In this studies sources of information about infant care practice among rural women of the pawi district were health profession 58.8%, family/relative were 21.4%, the neighbor was 9.9% and tv/radio were 8,2% (figure 2).

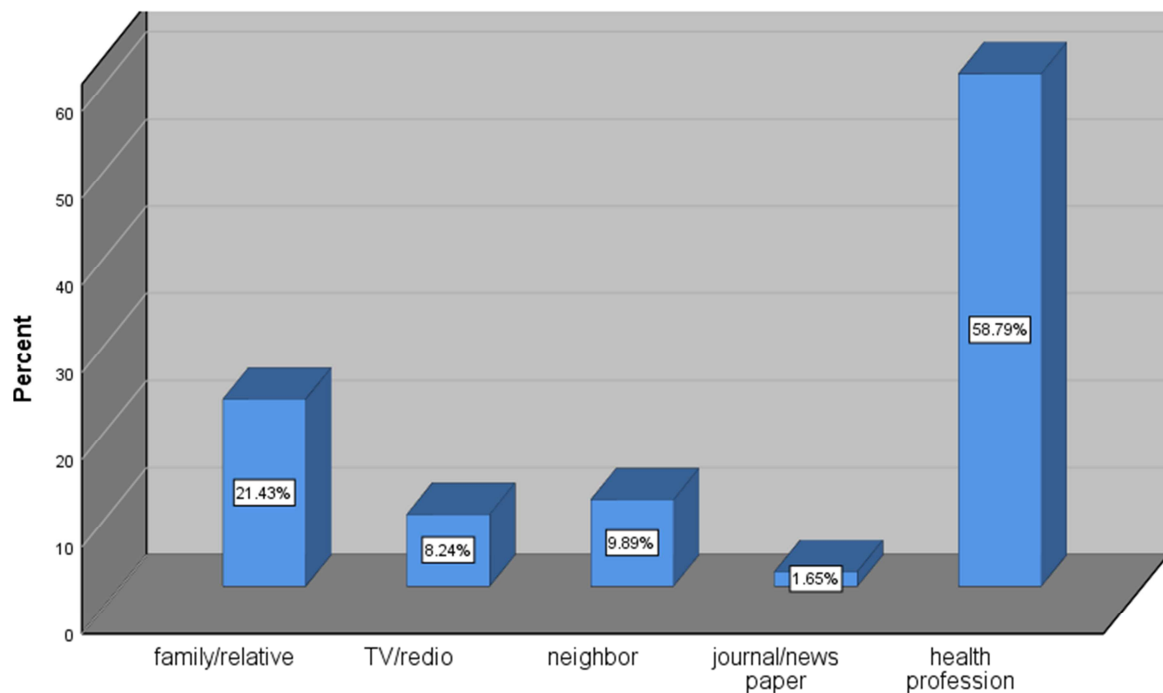


Figure 2 Source of information heard about infant care practice among rural women of pawi district Benishangul Gumuz northwest Ethiopia in 2021.

3.4. Breastfeeding Practice

About 272 (75.3%) of the mothers were initiated breastfeeding, from this initiation of first milk (colostrum) 186 (68.4%) were within one hour. The main reason that was not initiated within one hour were lack of knowledge 25 (27.5%, followed by culture 15 (16.5%), and among study participants 85 (23.5%) gave additional diet before six months of age and most given additional diet before six months were water 46 (54.1%), followed by cow milk 26 (30.6%) (Table 3).

Table 3 Practice of women on timely initiation of breastfeeding, in pawi district Benishangul Gumuz northwest Ethiopia in 2021.

Variable	Frequency	Percent
Initiation of first milk (colostrum)		
Yes	272	75.3
No	89	24.7
Total	361	100.0
Time of initiation first milk		
Before 1 Hr.	186	68.4

Variable	Frequency	Percent
After 1 Hr.	86	31.6
Total	272	100.0
Reason for no initiation first milk		
Culture	15	16.5
Religious	5	5.5
Cause diarrhea	15	16.5
Lack of knowledge	25	27.5
Previous experience	4	4.4
Individual performance	7	7.7
Constipation	8	9.9
Elder advice	3	4.4
Health problem	7	7.7
Additional feeding before six months		
Yes	85	23.5
No	276	76.5
Total	361	100
Additional feeding is given for the infant before six months		
Water	46	54.1
Butter	11	12.9
Cow milk	26	30.6
Holy water	2	2.4
Total	85	100.0

Complementary feeding practice.

Among the total respondents about 165 (45.7%) were age greater than 6 months, from those who start complementary feeding were porridge 89 (53.9%) followed by cow milk 71 (43%) and time of complementary feeding for the infant most of the respondents responded after breastfeeding 61 (37%) and during child crying 46 (27.7%), how often provide complementary feeding were 3-4 time 69 (41.8%) and twice 63 (38.2%).

3.5. Immunization Status of Infant Among Rural Women of Pawi District in 2021

Among the respondents, 354 (98.1%) immunizing and immunized their infant from those ages less than nine-month 239 (67.8%) and 115 (32.2%) were greater than nine-month and the Status of immunization infant age less than nine-month were started not complete 233 (97.5%) and 6 (2.5%) started but drop out. Among those aged nine months to 12 months were complete 88 (76.5%), note complete 24 (20.9%), and drop out 3 (2.6%).

Reason for not given or drop out the vaccine among mother gave birth infant age less than one year was health facility problem was (53.33%), followed by individual perception, (20%), previous experience (13.33%), culture (6.67), and lack of knowledge (6.67%).

3.6. Infant Care Practice During Illness

Among the total respondents, responded for infant care 134 (37.1%) were faced illness and types of infant illness, about 59 (44.0%) were fever, followed by 28 (20.9%) diarrheas. Among infants that faced illness, that taken to treatment during illness were 114 (85.1%) and respondent's place where taken the infant for treatment health facility was 82 (71.9%) followed by traditional treatment 14 (12.3%) (Table 4). Among those not taken the infant for treatment, the main reason was lack of money 10 (50%) and infant feeding frequency during illness was the some too during health time were 85 (64.4%) (Table 4).

Table 4. Infant care during illness among rural women of pawi district Benishangul Gumuz northwest Ethiopia in 2021.

Variable	Frequency	Precent
Infant faced illness		
Yes	134	37.1%
No	227	62.9%
Total	361	100.0

Variable	Frequency	Precent
Types of illness faced the infant		
Fever	59	44.0%
Diarrhea	28	20.9%
Breathing problem	13	9.7%
Vomiting	19	14.2%
Loss of hepatitis	15	11.2%
Did you take to treatment for the infant		
Yes	114	85.1
No	20	14.9
Total	134	100.0
Where did you take the infant during illness		
Health facility	82	71.9
Home treatment	6	5.3
Traditional treatment	14	12.3
Religious	9	7.9
Other	3	2.6
Reason for not take for treatment		
Far health facility	4	20.0
Lack of money	10	50.0
Culture	1	5.0
Lack of transportation	5	25.0
Frequency of feeding during illness for the infant		
The some too during the health	85	63.4
More frequent during illness	49	36.6
Total	134	100.0

Cord and bathing care practice.

Among the study participant position of the infant, after delivery reported 182 (50.4%) were on the maternal abdomen. Among the study participant, the umbilical cord of an infant should be cut with a safe instrument such as a new blade or a boiled blade. A new blade instrument for cord-cutting in the study areas was used by health facility material 244 (67.6%), and applied material on umbilicus was 206 (57.1%) and types material applied butter/milk 87 (42.0%), 320 (88.6%) dried and wrapping of the baby the infant after birth and bathing of an infant should be delayed until after the first 24 hours of birth to prevent the risk of hypothermia., the result shows 149 (58.2%) of the women bathed their infant before 24 hours birth.

Among the study participant, the umbilical cord of an infant should be cut with a safe instrument such as a new blade or a boiled blade. A new blade instrument for cord-cutting in the study areas was used by health facility material 244 (67.6%), and applied material on umbilicus was 206 (57.1%) and types material applied butter/milk 87 (42.0%) (Table 5).

Table 5. Cord and bathing care practice among rural women of pawi district Benishangul Gumuz northwest Ethiopia 2021.

Variable	Frequency	Percent (%)
Infant bath during birth		
Yes	256	70.9
No	105	29.1
Total	361	100.0
Time of infant bath during birth		
before 24hr	149	58.2
after 24Hr	107	41.8
Total	256	100.0

Variable	Frequency	Percent (%)
Materials used to cut the cord		
New blade	98	27.1
Boiled used blade	16	4.4
Opened used blade	3	0.8
Health facility material	244	67.6
Total	98	27.1
Apply any material on the cored		
Yes	206	57.1
No	155	42.9
Total	361	100.0
Type of material applied on the cored		
Dust	38	18.4
cow dung	26	12.6
Milk/butter	87	42.0
Other	56	27.1
Total	207	100.0

Level of infant care practices among rural women in pawi district in 2021.

The level of good infant care practice was 47.37% while the remaining 52.63% was poor infant care practice (figure 3). Among the selected five care practice for infant care practice safe cord-cutting (apply the material on the cord)

(57.1%), thermal care (bath infant within 24 hours) (58.2%), and initiation breast after one hour 31.6% were the major contributors for poor infant care (figure 4).

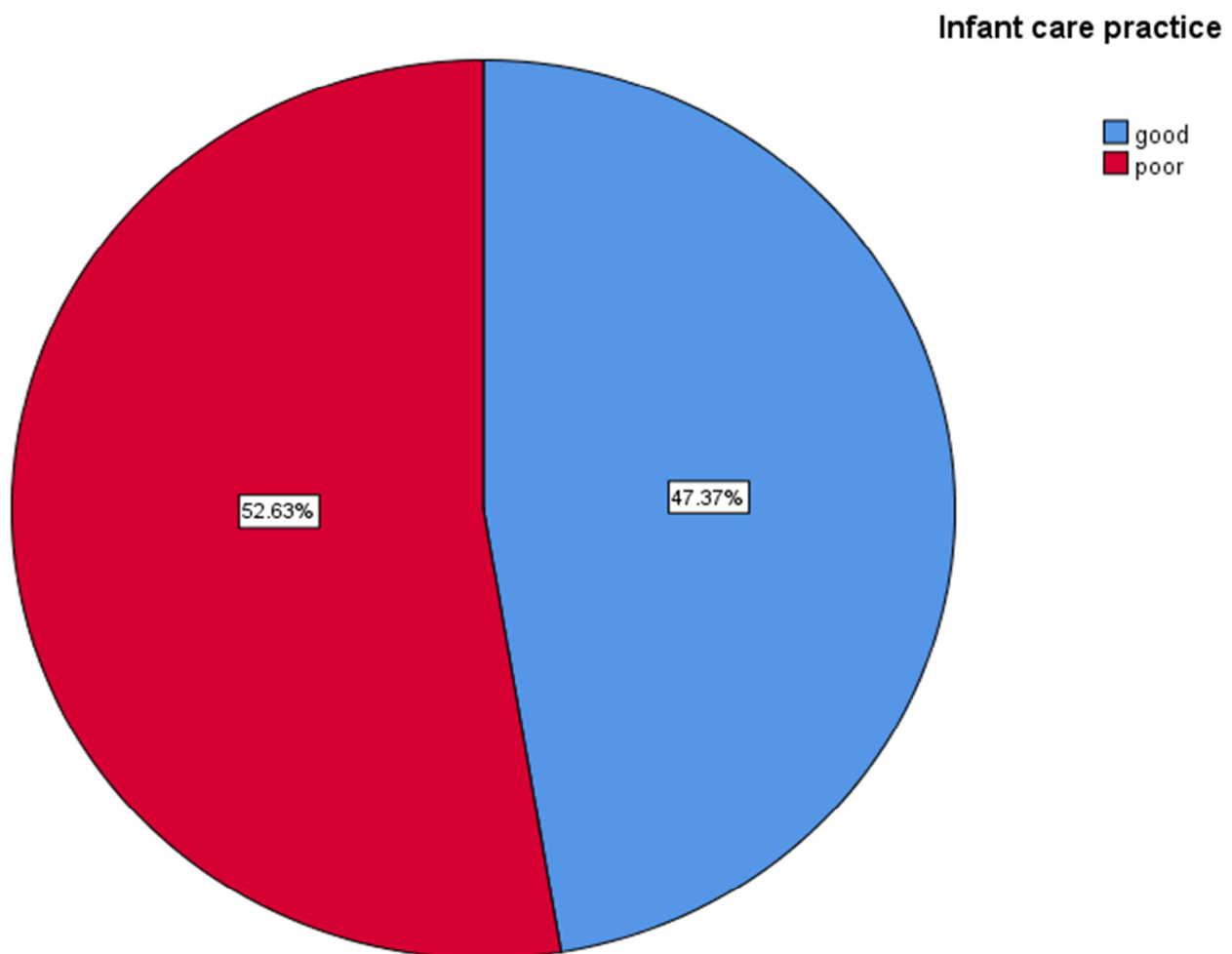


Figure 3. Levels of infant care practice among rural women pawi district Benishangul Gumuz northwest Ethiopia in 2021.

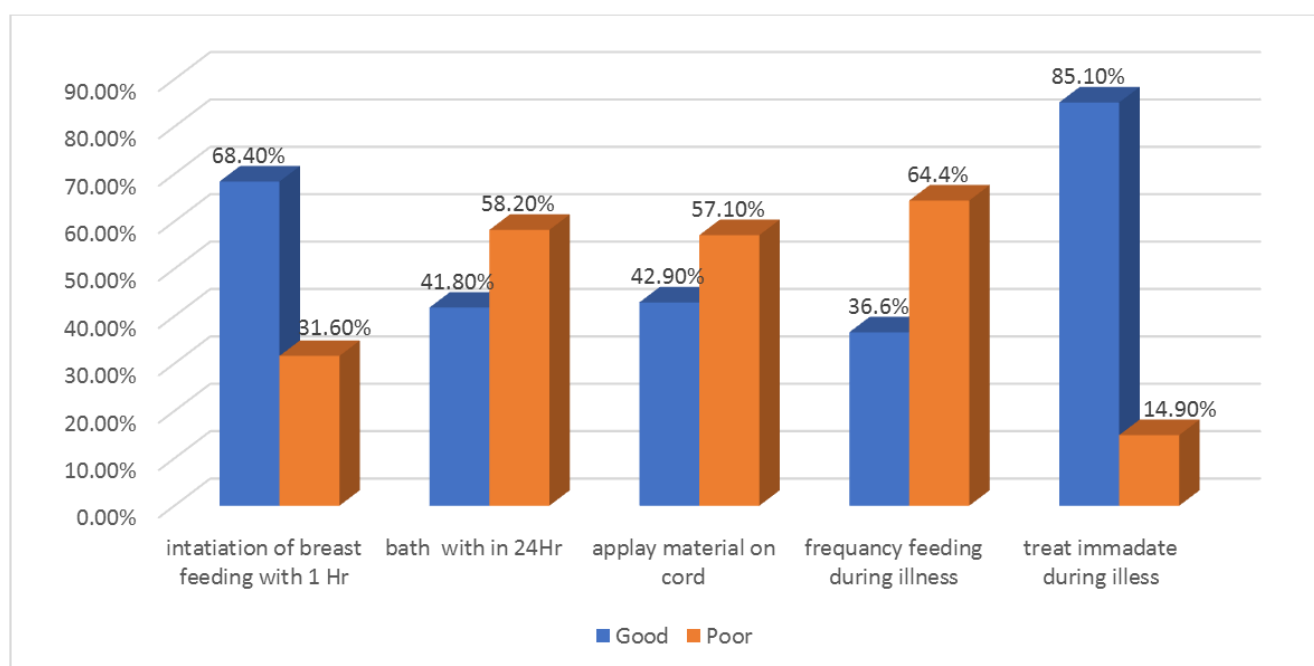


Figure 4. Overall selected measurement infant care practice by categorized individually in pawi district Benishangul Gumuz northwest Ethiopia in 2021.

Factors associated with infant care practice among rural women of pawi district Benishangul Gumuz northwest Ethiopia in 2021.

In Bivariate analysis religious, mother educational status, monthly income, number of family size, attended during the last delivery, Antenatal care visited, informed /advised during ANC visited, and Maternal knowledge like information about infant bath and initiation of a

breast-feeding infant had associated with infant care practice. In multiple logistic regression religious, educational status of the mother, number of family size, who attend during the last delivery, have you attended an antenatal follow up, informed /advised about infant care for the babies ANC visited and information about infant care practices were reminded statistically significant with infant care practice.

Table 6. Multiple logistic regression infant care practices among rural women of pawi district Benishangul Gumuz northwest Ethiopia in 2021.

Variable	Infant care practice		COR (95%CI)	AOR (95%CI)
	Good	poor		
Religious				
Orthodox	94	95	1	1
Muslim	43	47	1.082.654 1.787	0.964 (0.548 1.697)
Protestant	25	24	.950.507 1.781	0.773 (0.382 1.566)
Catholic	6	11	1.814.645 5.106	1.896 (0.620 5.794)
Other (tawot)	3	13	4.288 1.183 15.535	5.466 (1.311 22.793) **
Educational status of a mother				
Unable to read and write	56	73	4.888 (1.538, 15.540) **	3.275 (0.878, 12.216)
Read and write only	49	52	3.980 (1.235, 12.821) **	2.781 (0.749, 10.323)
Primary education	42	43	3.839 (1.177, 12.520) **	2.902 (0.800, 10.528)
Secondary education	9	18	7.500 (1.920, 29.298) **	6.605 (1.542, 28.286) **
college and above	15	4	1	1
Occupational status of the mother				
house wife	84	113	1.190 (0.635 2.230)	2.784 (1.079, 7.184) **
Merchant	19	16	0.745 (0.312 1.778)	1.362 (0.406, 4.569)
Employed	12	5	0.369 (0.113 1.205)	0.664 (0.150, 2.947)
private employment	33	30	0.804 (0.381 1.699)	1.508 (0.550, 4.137)
Unemployed	23	26	1	1
Family size				
<3	26	43	1	1
3-5	77	90	1.973 (1.082, 3.598) **	3.484 (1.594, 7.614) **
>5	68	57	1.394 (0.876, 2.220)	1.803 (1.060, 3.065) **
Family income				
< 500	8	9	1	1
500-1000	15	21	1.346 (0.412, 4.395)	0.856 (0.201, 3.648)
>1000	26	8	0.268 (0.077, 0.938)	0.175 (0.034, 0.901)

Variable	Infant care practice		COR (95%CI)	AOR (95%CI)
	Good	poor		
No income	122	152	1.176 (0.434, 3.182)	0.562 (0.157, 2.013)
Who assists during the last delivery				
Midwife /nurse	140	113	1	1
Health extinction worker	2	10	0.2690 (0.071, 1.017)	3.944 (0.769, 20.225)
TBA	12	29	1.667 (0.225, 12.353) **	3.198 (1.158, 8.828) **
No assistance	8	14	0.806 (0.185, 3.502)	.286 (0.054, 1.526)
Relatively /friend	6	15	0.583 (0.121, 2.801)	1.395 (0.407, 4.782)
Other	3	9	0.833 (0.166, 4.184)	3.717 (0.983, 14.053)
ANC Follow up				
Yes	126	104	1	1
No	45	86	2.315 (1.485, 3.611) **	2.104 (1.331, 3.327) **
Informed /advised about infant care during ANC visited				
Yes	89	50	1	1
No	37	55	2.646 (1.539, 4.549) *	2.371 (1.314, 4.279) **
Information about infant bath practices				
Yes	100	82	1	1
No	71	108	1.855 (1.221, 2.818) **	1.855 (1.221, 2.818) **
Information about the initiation of breastfeeding				
Yes	91	74	1	1
No	80	116	1.792 (1.154, 2.781) **	1.243 (0.709, 2.179)

** indicated p-value less than 0.05 other (religious) *tawot* TBA (traditional birth attendant), ANC (antenatal care).

4. Discussion

In this study, it was found that 47.37% of mothers practiced good infant care. This finding was lower than studies conducted in Bangladesh 56% [37] and higher than studies conducted in rural Gedo district which was 24.1% [8] and studies conducted in Mandira 40.6% [19]. This difference could be explained by good infant care practice is determinants by the educational status of mothers, access to health services, mother knowledge about good infant care, and income of the respondents.

The study result showed that among 361 women's 186 (68.4%) early initiation of breastfeeding first breast milk within one hour. This finding is better when compared to the study conducted in rural Nepal initiation of breast milk were (41.4%) [43], studies in China initiation of first milk 22.4% [25]. Another study conducted in Bangladesh initiation of breast milk 67% [37], Uganda 60.7% [26], and studies in rural Tigray Ethiopia (61.9%) [33] mothers initiated breastfeeding within one hour after they gave birth. A possible explanation may be different could be explained by socio-economic, study setting and availability of health service in the study area and access of information from health professionals.

In this studies the result of the initiation of breast milk was much lower than the studies done in, Ethiopia (national) (73%), SNNP (77%), Dire Dawa (90%), Harari (89%), and Somali (78%) [22]. This study would possibly be explained that all the respondents were from rural kebeles where timely initiation was less likely.

In this study, 58.2% of the infant were bathed before 24 hours of birth. This result is higher than the study conducted in Nepal that showed after 24 hours of bathing 34% of them were reported to have had their first bath immediately after delivery [32]. This finding was relatively similar to studies

done in Uganda found 56% of infants were bathed before 24 hours of birth [12]. The difference is due to socio-economic status and lack of knowledge since pawi district is found in Benishangul Gumuz region expected to be lower than other regions could be the possible explanation.

In this study's mothers apply a material on a cord 57.1% these studies showed that higher than studies EDHS 2016 in Tigray 39.3%, Gambelia 8.3%, and Somali 18% [22]. This could be due to the reason that in the current study majority of respondents were only in the rural community and socio-demographic status.

According to this study (45.7%) of respondents start complementary feeding at six months. This study was higher than studies in start complementary feeding at six months Nigeria was (25%) and horror Ethiopia were 21.4% [30, 64] and less than studies conducted in Nilphamari Bangladesh were 60.4% [37]. This difference socio-cultural and maybe that maternal knowledge/education related to complementary feeding.

The majority of the respondents for infant care during illness (44%) fever and (20.9%) were diarrheas. This study shows that lower than studies conducted in Saudi (56%), burayu Ethiopia (45%), and Uganda (42%) common care for the infant was diarrhea [25, 31, 45]. This might be due to practice settings change with time, the differences in study settings, and socio-cultural differences.

Family size significant associated with poor infant care practice, those family size woes greater than 3-5 family size had three 3.4 times more likely to poor infant care practice as compared to mothers who had family size less than three ((AOR=3.484 CI: (1.594, 7.614)) and also those family size woes greater than five had 1.8 times more likely to poor infant care practice as compared to mother who had family size less than three (AOR=1.803 CI: (1.060, 3.065). The possible explanation may be families has more family's size needs extra income, human resource, and food.

The educational status of women was a significant association with infant care practice. This study showed that Woman's who had secondary school were (AOR=6.605 (1.542, 28.286) times more likely to have infant poor care practice than women who had college and above education. This was higher than studies in adjuvant Uganda, Gedio zone Ethiopia and lower than studies in rural awabel [8, 46, 47]. This difference could be explained by the understanding of health service utilization is high in educated mothers.

In the current study, women not attending antenatal care were 2.1 more likely to have poor infant care practice compared to women were attended antenatal care (AOR=2.104 (1.331, 3.327). This is consistent with a study done by Nilphamari Bangladesh, Ghana, and Gideon [33, 37, 38, 47]. The possible explanation of is antenatal care attended women's have possibility getting information about infant care practice.

Mother attended delivered during last pregnancy was found to have a statistically significant association with infant care practice those mothers attended delivered by traditional birth attendant 3.198 times more likely poor practice as compared mother delivered by midwifery or nurse AOR=3.198 (1.158, 8.828). The reason for this explanation was health profession is more knowledgeable than traditional birth attendants to manage danger signs during the infant.

In this study having women who had no information about bathing were 1.8 times more likely to poor infant care practice than compared with women who had information about infant bathing AOR=1.855 (1.221, 2.818) and also women who did not know about breastfeeding within one hour have 1.243 (0.709, 2.179) times to poor infant care practice than those women who have knowledge breastfeeding after one hour. This is consistent with cross-sectional studies done in Nepal [6], Pakistan [34], Boditi Ethiopia [27], and Gonder Zuriya [48]. It is a general fact that most of the time mothers who know bath time can potentially apply it into practice.

5. Conclusion

This study had shown that infant care practice in pawi district more than half was poor infant care practice and infant care practice was found to be significantly associates with mother educational status, mother occupational status, family size, assist during delivery, ANC follows up, advised during ANC follows up, information about infant bath, and information about initiation breastfeeding for poor infant practice care of mothers.

Acronyms and Abbreviations

ANC-Ante-Natal Care, AOR-Adjusted Odds ratio, BCG-Bacillus Calmette Gurion, CI - Confidence Interval, CF - Complementary Feeding, EBF -Exclusive Breastfeeding, EDHS -Ethiopian Demography and Health Survey, EMHD - Ethiopian Mean Health Development, ITNs - Insecticide

Treated Bed Nets, IYCF -Infant Young Child Feeding, MDG - Millennium Development Goals, ORS -Oral Rehydration Therapy, SBA- Skill Births Attendance, SDG- Sustainable Development Goals, SNNP -Southern National Nationality People, TBA - Traditional Birth Attendance, PNC - Postnatal Care, UNICEF - United Nations International Children's Emergency Fund, UNDP -United nation development program, WHO - World Health Organization.

Declarations

Ethics Approval and Consent to Participate

Ethical approval was obtained from an ethical review committee of Jimma University. Letter of permission was secured from pawi district health offices. Kebele administrators are communicated through formal letters from the Health office in addition to personal communication. Confidentiality of the information was assured and the privacy of the respondent was maintained by removing personal identities.

Consent for Publication

Not applicable.

Availability of Data and Material

Additional file: Data abstraction tool.

Competing Interests

The authors have declared that they have no competing interests.

Authors' Contribution

All authors contributed to data analysis, drafting or revising the article, have agreed on the journal to which the article will be submitted, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

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