

Uptake of, barriers and enablers to the utilization of postnatal care services in Thyolo, Malawi

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Abstract

Background

Postnatal care (PNC) ensures early assessments for danger signs during the postpartum period and is to be provided within 24 hours of birth, 48–72 hours, 7–14 days, and six weeks after birth. This study assessed the uptake of and the barriers and facilitators to receiving PNC care among mothers and babies

Methods

A concurrent mixed-method study employing a retrospective register review and a qualitative descriptive study were conducted in Thyolo from July to December 2020. Postnatal registers of 2019 were reviewed to estimate the proportion of mothers and newborns that received PNC respectively. Focus Group Discussions (FGDs) among postnatal mothers, men, health care workers, and elderly women and in-depth interviews with Midwives, and key health care workers were conducted to explore the barriers and enablers to PNC. Observations of the services that mothers and babies received within 24 hours of birth, at 48–72 hours, 7–14 days, and six weeks after birth was conducted. Descriptive statistics were tabulated for the quantitative data using Stata while the qualitative data were managed using NVivo and analysed following a thematic approach

Results

The uptake of PNC services was at 90.5%, 30.2%, and 6.1% among women and 96.5%, 78.8%, and 13.7% among babies within 48 hours of birth, 3 to 7 and 8 to 42 days respectively. The barriers to PNC services included the absence of a baby or mother, limited understanding of PNC services, lack of male involvement, and economic challenges. Cultural and religious beliefs, advice from community members, community activities, distance, lack of resources, and poor attitude of health care workers also impeded utilization of PNC services. The enablers included the mothers' level of education, awareness of the services, economic resources, community-based health support, adequacy and attitude of health workers, seeking treatment for other conditions, and other clinic activities.

Conclusion

Optimization of uptake and utilization of PNC services for mothers and neonates will require the involvement of all stakeholders. The success of PNC services lies in the communities, health services, and mothers understanding the relevance, timepoints, and services that need to be delivered to create demand for the services.

Background

World Health Organisation recommends the provision of Postnatal Care (PNC) to the mother and neonate within 24 hours of birth irrespective of where the birth occurred and also at 48-72 hours, 7-14 days, and six weeks after birth [1]. Early Postnatal care ensures initial assessments for danger signs during the postpartum period such as excessive bleeding in the mother and other neonatal problems. Improving the quality of care provided during the postpartum period increases the utilization of the services [2].

Enablers to the utilization of PNC include a desire to have a child immunized [3] health assessments of an infant [4], attendance of antenatal care [3, 5] and knowledge of the existence of PNC services [3]. Other factors associated with attendance to PNC services include; being in the 20-24 age group, being employed [3], family support [3, 6], the ability of a woman to make decisions, and residing in an urban area [7]. A positive outcome of the previous pregnancy and delivery at a health facility increases the utilization of PNC services [6]. A review of Malawi's recent Demographic Health Survey (DHS) indicates that utilization of PNC is associated with being older age, delivery through a cesarean section, and compliance to antenatal visits [8].

Barriers to PNC include lack of information on the services [3, 9, 10] cultural beliefs [10], time constraints because of income-generating activities [7, 9], a younger age of 15-19 [3], lower education status within a couple [9], having more children [9, 10] geographical inaccessibility of services [7, 10], competing care of other children at home, lack of the services and woman's lack of decision-making ability [7, 9]. Furthermore, the absence of pregnancy, birth, and postpartum-related complications dissuade attendance to PNC [9]. Transportation challenges coupled with indirect costs associated with PNC lead to low uptake of the services [9, 10]. The fragile referral systems and practices among health care workers are impediments to the utilization of PNC services [10]. These practices include health workers' stigma and shortage of staff which is further compounded by limited skills in the presence of a high volume of patients [9, 10].

There is limited research in Malawi on PNC services with more maternity studies focusing on antepartum and intrapartum services. Evidence from earlier studies shows that midwives rarely conduct postnatal checks on mothers without known complications unlike on those that presented with a risk factor or complaint due to pressure of work [11]. The evident disparities in utilization call for an understanding of barriers and enablers to PNC utilization in a Malawian setting. Given the paucity of data on postnatal care in Malawi, this study assessed the uptake of postnatal care among mothers and babies and the barriers and facilitators to receiving that care. This information will be relevant for use by policymakers both locally and beyond in strengthening the delivery and uptake of PNC.

Study Design

This was a concurrent mixed-method study that was conducted from July to December 2020 in Thyolo District, Malawi (12). The quantitative approach followed a retrospective register review while the qualitative approach was a descriptive study with ethnographic approaches. Postnatal registers from January to December of 2019 were reviewed to estimate the proportion of mothers and newborns that

received any PNC and the components of the services they received. A descriptive qualitative study was conducted using Focus Group Discussions (FGDs) among postnatal mothers, men whose partners were postnatal mothers, health care workers, and elderly women and grandmothers. We conducted in-depth interviews with, Midwives, and key health care workers. We observed the PNC that mothers and babies receive within 24 hours of birth, at 48-72 hours, 7-14 days, and six weeks after birth.

Study Setting

The study was conducted in three facilities in Thyolo district. Thyolo is located in the Southern part of Malawi and has a population of 458,976, and of these 177, 298 are women of childbearing age [13]. The facilities included a health centre located at a trading centre with vibrant economic activities and is 20kms from the district hospital, a rural-based hospital located 53kms from the District Hospital, and the district hospital which is also the referral hospital for all health centres and hospitals in the district. The selection of sites was purposively done to maximize the breadth of responses from the qualitative component and also to achieve representation of the district from the retrospective review of registers. The study was conducted in Thyolo because it is one of the districts with poor maternal and newborn indicators with the maternal mortality ratio and neonatal mortality rate in 2017/2018 at 136/100,000 live births and 27/1000 live births respectively [14]. All facilities provide maternity services with only the district hospital conducting caesarian sections.

Sampling and Sample Size

Quantitative Retrospective Audit Sampling and Sample Size

The sample size was calculated using Cochran's sample size calculation formula [15]. In 2019, the number of postnatal women registered in Thyolo was 4328, 664 were from facility one, 810 from facility two, and 2854 from facility 3 [14]. In the same year, there were 4382 neonates in the register with 669 from facility one, 821 from facility two, and 2892 from facility 3 [14]. We employed a proportionate sampling technique and aimed at 95% CI, a margin error of 5%, and a population proportion of 50%. Using the above estimates the sample size was 353 women and 354 neonates. The study followed a systematic random sampling [16] and used PNC registers for 2019 in the three facilities because they were the most recent ones at the time of the study. A random start point was selected from a box of random numbers, and it was between serial numbers 1 and 10.

Qualitative Sampling and Sample Size

We used a purposive approach with maximum variation [17] and included participants of varying characteristics to broaden the scope of our responses. The sample size is illustrated in Table 1.

Table 1- Sample Size and Sampling Technique for Qualitative Component

Participant type	Method of data collection	Number	Sampling Technique	Rationale
Maternity Staff	In-depth Interview	7	Purposive	These were key to the provision of PNC services at various levels.
Elderly women and Grandmothers	Focus Group Discussions	24	Purposive	They advise women on maternity aspects
Men	Focus Group Discussions	24	Purposive	They are decision-makers in families and provide for resources to access care
Health Surveillance Assistants	Focus Group Discussions	24	Purposive	They provide Postnatal Care services in static and outreach centres. They are liaison points with the community
Postnatal Mothers	Focus Group Discussions	24 (Varied with age)	Purposive	These are the beneficiaries of the services.

Data Collection

Retrospective Register Review

A data extraction form that mirrored components of the registers was used to extract data from the PNC registers (Additional File 1 and 2). The tool was assessed for face validity by a group of experts in maternal and neonatal care and checked against the register. Data were extracted by three trained Research Assistants.

Focus Group Discussions and in-depth interviews

Focus Group Discussions were deliberated in Chichewa (local language) using discussion guides (Additional File 3 and 4) that were pretested before data collection. The results of these pilot interviews were not incorporated in the findings however they assisted in revising the questions for clarity and incorporation of additional probes. Data were collected by four trained research assistants that are well versed in qualitative research. All participants were identified with pseudo names during the FGDs and each one was asked to identify themselves with the pseudo name before contributing during the FGDs. FGDs were conducted in a private setting as selected by the participants. Interviews among health care workers were conducted in Chichewa following an interview guide (Additional File 5). After each interview and discussion, research assistants summarized key findings and shared them with the participants as a form of member checking [18]. Our results include the quotes of the participants to increase the dependability of our findings, we achieved credibility of our findings by collecting data from multiple sources and using multiple methods of data collection [18]. The research team reflected on their experiences and knowledge of postnatal care services to avoid their experiences from guiding the data

collection and influencing the analysis of the data [19]. This was achieved through team meetings during the period of data collection which was also supported by each researcher writing down their experiences, assumptions, and knowledge regarding postnatal care [19]. Team meetings were an iterative process during the data collection and analysis phase [19].

Observations

Observations were conducted for a total of 36 hours in the three facilities during the day, night, and early morning shift dependent on the specific time point and availability of a participant. The observations were on a postnatal woman with or without a living baby, varied ages of babies including 24 hours, 48 hours, 7 days, and 42 days after birth, and had to be 16 years of age and above. The observations focused on interactions between postnatal women, and their babies with health care workers and paid attention to the health services they received and anything else of note to the experience of PNC.

Ethical Clearance

College of Medicine Research and Ethics Committee which is the ethics committee of Kamuzu University of Health Sciences approved this study (file number: P.03/20/2977) before initiation of any study procedures and all methods were carried out in accordance with relevant guidelines and regulations of the ethics committee and the Declaration of Helsinki.

Data Management and Analysis

All data were kept in locked cabinets at Kamuzu University of Health Sciences (KUHeS) and in password-protected computers with access limited to lead researchers. Quantitative data from the registers were entered into an excel database that was later exported to Stata for descriptive analysis where frequencies were tabulated. We could not determine associations because the registers do not capture sociodemographic details that are a prerequisite for such analysis

Audio recordings were transcribed verbatim, translated into English as applicable, and managed using NVivo 12 software (QSR International, Melbourne, Australia). Data were analysed using a thematic approach following a coding framework that was developed from a review of the initial transcripts [20]. The team iteratively discussed the findings as the data collection and analysis progressed. All similar codes were grouped under overarching themes of either barriers or facilitators. Each overarching theme was later classified to show the factors at different levels of individuals, health systems, and communities. All tenets under a theme were verified against the audios to ensure that they were representative of the data.

Results

Quantitative Results

We reviewed entries of 358 mothers and 358 entries of newborns. Among these women, 65.1% were from facility 3, 17.9% from facility 2, and 17% from facility 1. Of these women, 5.1% were HIV positive, one woman died (Table 2). Access to PNC by mothers was 90.5% within 48 hours, 30.2% from 3 to 7 days period, and 6.1% from 8 to 42 days period. The postnatal care services that were provided included uterine assessments, assessments for complications, and the provision of family planning methods. The majority of the women (99.2%) had an involuted uterus, all the women did not have any postnatal complications, 77.2% of the women were advised about family planning and all the women breastfed their babies. Vitamin A was administered in 20.1% of the cases and 12.1% were on family planning methods postnatally (Table 2). All women had normal lochia and had an intact episiotomy.

Table 2
Summary of Maternal Post Natal Care Register N = 358

Hospital	Participants	Percent
Mothers status		
Alive	357	99.7
HIV test		
Positive	17	5.1
Post Natal Care		
Family Planning Care		
No	80	22.3
Post Natal HIV test		
Negative	72	98.6
Vitamin A		
Yes	58	20.1
No	230	79.9
Post Natal Family Planning		
Yes	16	12.8
No	109	87.2

Summary of findings from Neonatal Registers

A total of 358 entries of babies were reviewed. Among these babies, 65.1% were from facility 3, 17.9% from facility 2, and 17% from facility 1. The average birth weight for babies was 3.0 kilograms with a standard deviation of 0.4 kilograms. The majority of babies were alive (98.2%) and some of the neonates developed complications at birth, 2.2% developed asphyxia. Of these neonates, 14.8% had low birth

weight and 3.7% were resuscitated (Table 3). 96.5% of the babies accessed PNC within 48 hours, 78.8% of the babies accessed PNC between 3 to 7 days and 13.7% of the babies accessed PNC from 8 to 42 days. Of the post-natal care received, 93.5% received tetracycline eye ointment, 4.8% were HIV exposed and received Nevirapine and 9.4% received cord care (Table 3).

Table 3
Summary of findings from the Neonatal Registers

Hospital	Participants	Percent
Asphyxiated- Resuscitation		
No	289	96.3
Baby status		
Died	3	0.8
Post Natal care		
Low birth weight		
No	308	86.5
Immunization		
BCG & POLIO	332	95.4
No	16	4.6
Tetracycline Eye Ointment		
Yes	319	93.5
No	22	6.5
Cord care		
No	308	90.6
Vitamin K		
Yes	24	7.1
No	312	92.9
HIV exposed Infant nevirapine		
No	280	95.2

Demographic Characteristics of Health Surveillance Assistants

We had 3 FGDs with 24 Health Surveillance Assistants (HSAs) and of these 12 were females. All of them had attained a secondary school education with 16 having attained Malawi School Certificate of Education (MSCE) and the others having a Junior Certificate of Education (JCE). Their years of service ranged from 6 to 27 years and their age ranged from 23 to 49 years old. Each FGD comprised 8 HSAs.

Demographic Characteristics of Nurse-Midwives

We interviewed 7 Nurses/Midwives and of these 4 were Registered Nurses Midwives. Five of these were either facility or Departmental In-charges. The range of service was from 6 months to 9 years. Six were female and the age ranged from 24 to 36 years. The demographic characteristics of postnatal women, men, and elderly women are presented in Table 4.

Table 4
Demographic Characteristics of Postnatal Women, Men, and Elderly Women N = 72

Variable	PNC women n = 24	Men n = 24	Elderly Women n = 24
Age range	18–36	28–72	42–73
Employment	9	0	0
Housewives	7	14	6
Businesses	5	7	18
Farmers	2	3	0
Formerly employed	1	0	0
Health Volunteer			
Education	0	0	3
None	9	16	21
Primary	13	8	0
Secondary	2	0	0
College			

Barriers and facilitators to Postnatal Care Services attendance

The barriers and facilitators that influence attendance to PNC services in Thyolo have been categorized under three levels, individual, community, and health systems. This classification is not rigid as the factors are interrelated but has been selected to promote ease with understanding (Table 5).

Table 5
Barriers and enablers to attendance to Postnatal Care Services in Thyolo

Factors that Influence attendance to Postnatal Care Services in Thyolo		
Theme	Barriers	Facilitators
Individual Level	Absence of a baby or mother: Relocation or deaths	Level of Education
	Inadequate Understanding of PNC services	Recognition That PNC is a mothers' responsibility
	Lack of Male Involvement	Male Involvement
	Economic Activities and Factors	Economic Resources
Community Level Barriers	Cultural and Religious Beliefs	Community-based health support
	Advice from Community Members	Community Awareness
	Community Activities	Advice from Elderly women and Peers
	Distance	Adequacy and attitude of Health workers
Health System Barriers	Resources	Seeking treatment for other conditions
	The attitude of health care workers	Clinic activities and operations

Individual Level Barriers

Absence of a baby or mother: Relocation of Participants and deaths

Participants that relocate from one area to another find it hard to initiate or continue with PNC services, especially in the absence of a proper transfer. This was common with women and babies that come in from Mozambique secondary to porous borders. Once they deliver within facilities in Thyolo, they no longer report for postnatal services.

Others happen to come here, to give birth but they live in Mozambique so they do not have time to come back here to the hospital for post-natal, (HSA's FGD Facility 2)

It was noted that the babies whose mothers died or those whose mothers had suffered a mental illness were less likely to continue with PNC. If they continue then it is sporadic because in most cases they are cared for by the grandmothers who are usually old and cannot manage to keep up with postnatal visits.

I have seen several women who are mentally ill. These women and their children do not come for post-natal following the proper procedure. The orphans also do not come procedurally because the people

who look after them, are reluctant. Health Worker, in-depth interview, Facility 1

Mothers that have lost their babies rarely attend PNC services as they are either self-discriminating or at times find that the services have no targeted agenda for them. Again, in the communities, they are discouraged to attend the services as there is a prevailing belief that the services are for those with babies

... They [Mothers without babies] feel like coming here for post-natal at seven days and after six weeks, is good when the baby is there when the rule is not like that. Whether they feel pity that they will be seeing their friends have babies in their arms when they do not have babies. So they just decide to stop that they should not come. Health Worker, in-depth interview, Facility 1

Inadequate understanding of PNC services

The lack or limited understanding of the relevance of PNC bars the women from attending the services. Health care workers attributed limited understanding to the low levels of literacy among most women that attend PNC. They argued that if the literacy levels were high most women would appreciate the relevance of PNC and that low literacy levels influence their beliefs and use of traditional medicines. Health workers stated that when advised on PNC some women openly state that they will use traditional approaches.

Lack of knowledge, like in the case that the person was pregnant and has delivered but they lack knowledge that they are supposed to come with the baby for postnatal despite that they have delivered, it might be that this kind of knowledge has not yet reached this mother...Lack of civic education, maybe the mother was not taught which can make her fail to come. HSA's FGD, Facility 2

Lack of Male Involvement

The lack of male involvement in aspects of maternity services including postnatal care limits a woman and her baby's attendance at PNC. Postnatal women stated that in some instances some husbands bar their women from leaving their homes and would rather have them at home all the time. The belief that the decision-maker in a home is a man influences attendance to PNC by the mother and the baby. In instances when the man is not home then a woman may fail or delay initiating health-seeking behaviour until her partner has consented to that.

Sometimes as you know women follow what husbands' dictates, when he says the baby must not be helped, as a breadwinner and a decision-maker everyone follows that. As a result, the baby is left in the hands of the grandmother who is not capable of looking after the baby. Elderly Women's FGD, Facility 2

Men corroborated the findings and stated that in some instances men fail to support their partners including a lack of interest in the services that a mother and baby are accessing.

Sometimes it is us, men when we choose not to take part in postnatal care. As he has already said, sometimes we fail to provide soap to the mother which makes the woman fail to patronize postnatal care. Sometimes when she goes for postnatal care we don't ask her how much the child weighed, the next

date of appointment, as such, she takes postnatal care as if it's just for her and she has the freedom to go or not. Men's FGD, Facility 2

Economic Activities and Factors

The pursuit of activities for economic benefits prevents women and babies from attending PNC. Participants stated that some women would rather attend to their businesses, farming, or other economically rewarding activities than attending to PNC.

Social-economic status affects post-natal checkups so much here because other people go for piece work to get money and sustain themselves and miss post-natal. I also mentioned rain, even this morning you cannot see lots of people here because they have gone to their fields since it is growing season. Health Worker, in-depth Interview, Facility 2

The lack of finances to support transportation costs also lead to the non-attendance of PNC. Furthermore, the inability to provide supplementary feeds to the baby while at the clinic persuade women to miss PNC appointments. At times women prioritize providing a meal for their family over using the money to meet transportation costs. They weigh whether to use the available money on transport to the health facility or on food to feed their families.

Sometimes transport becomes a challenge. Some of us have to travel by public transport and when it happens that on the specified date we were given have no money, we will not go and we start searching for the transport..... it might be due to lack of money by the guardian. PNC Mothers' FGD, Facility 1

Community Level Barriers

Cultural and Religious Beliefs

Some religious beliefs bar their members from accessing health services from a facility because that would be a sign of disbelief in the religion and the healing powers therein. Women further expressed that even after being visited by HSAs, the women whose religion prohibits them from accessing health services never show up for PNC. Traditional leaders have tried to intervene but have not yielded positive outcomes from some of the religious groups that are against seeking health services and such women also deliver at home.

Sometimes it is because of beliefs that some people hold. You see last month I visited some women worshipping with Zion church, I found them pregnant and I was asking them about antenatal care but only to be told there were praying and when the time comes for delivery they will do it home. Such incidents discourage HSAs from going there again and do the expected work. HSA's FGD, Facility 3

Some cultural beliefs or norms of the management of a baby after delivery prevent mothers from accessing PNC services. Some practices involve elderly women attending to the newborn with herbs that are believed to facilitate the drying of the umbilical cord stump.

On the beliefs, usually, when a woman gets discharged after delivery the baby and her mother fall sick when that happens instead of rushing to the hospital they rush for herbalists that they believe can heal them. HSA's FGD, Facility 3

Advice from Community Members

The various pieces of advice that PN women receive from members of their community and the beliefs that are shared across a community and established as norms also contribute to the non-attendance to PNC. Elderly women stated that in some instances older women ill-advised their wards on the importance of PNC, as such they are neglected in the services. The advice from the elderly in instances where babies are born at home usually discourages one from attending PNC services which are further compounded with the fear of being penalized for delivering at home

Some women tolerate their children's laziness and do not take their children to the hospital for postnatal or even when they were pregnant or when they give birth at home. So they are stuck when their babies get sick so they end up going to private hospitals out of fear, since they know that at private clinics they will not bother to follow the records because it is a business to them. It is so difficult for the private clinic to diagnose what is wrong with the baby and the baby can die. Elderly Women FGD, Facility 1

Community Activities

The activities that a woman engages in within her community may prevent her from attending PNC services. These activities include political rallies, wedding functions, initiation ceremonies, farming, funerals or any other deemed relevant. In such cases, a woman would opt to attend the events and return to the facility later when she is not occupied.

She can tell you that I was busy that is why I failed to come here. Sometimes she will tell you that there was a funeral which I (health worker) feel is part of the negligence because if they can reach a point of telling us that I was busy, ah there was a funeral, had it been that it is not negligence they could have started coming for post-natal for the baby and do the other things later. But it is just negligence. Health Worker in-depth Interview, Facility 1

Health System Barriers

Distance

The distance was of concern among participants from the rural based health facility and women failed to show up for PNC because they could not walk to the facility which was compounded in cases when they had no finances to cater for their transportation costs.

Sometimes some women reside far from the clinic, so it is difficult for them to go every month or every day that was allocated for them to attend antenatal services if the man did not provide transport. Men's FGD Facility 2

Resources

With the inadequacy of resources in a facility including a shortage of health workers, a facility is unable to reach all those that need to be visited if they do not present themselves at the facility. Women and men also stated that when there is glaring evidence of a shortage of health workers at the various facilities, women would rarely attend postnatal services. The shortage is more apparent in areas where they do not have designated health care workers responsible for postnatal services alone like in Health Centres.

Sometimes we fail to conduct out-reach clinics because of the lack of transport HSA's FGD Facility 2

Sometimes it happens that we are only two midwives and the labour ward is full rendering us busy, in such cases mothers who are due for discharge complain. Or those who have come for post-natal at seven days and six weeks when they find us busy they complain. Health Worker in-depth Interview, Facility 1

The attitude of health care workers

The attitude of health care workers impedes the utilization of postnatal services among women and their babies. Participants stated that the bad attitude includes shouting at the women, manner of reception, conduct while providing care such as time management, and reaction after they show up after missing their scheduled appointment date or if they report during the night. Some of the attitudes that are displayed when a woman is accessing antenatal care services determine if she will use the postnatal services or not. The negative attitude that is displayed by healthcare workers leads participants to conclude that the healthcare workers dislike their work. These sentiments were shared also by healthcare workers.

... Sometimes when you go to the hospital after the funeral, some doctors or nurses do not welcome us warmly. With such fear in our minds, we simply skip postnatal care for that particular month and visit the hospital in the following month. PNC mothers' FGD, Facility 1

Maybe, the way they speak. Or maybe, unfortunately, let's say they are late for their visit and they get shouted at, so some feel discouraged that there they were shouted at leading to embarrassment, especially if in the presence of a group of people. So some may pull back. But mostly it is about the way they speak. Health Worker in-depth Interview, Facility 3.

Factors That Enable Utilization Of Pnc Services

Individual Level Factors

Level of education

The level of education facilitates understanding of the relevance of PNC services such that educated women usually attend the services. Participants stated that one's level of education and understanding facilitates remembrance of appointment dates for the next visit. In such cases even if a woman has other commitments they can reschedule and attend PNC.

Education can help this mother to come for post-natal because that facilitates understanding of issues however, when a mother is not educated, it is a challenge for her to understand the relevance and schedule for PNC. Health Worker in-depth Interview, Facility 1.

Recognition That PNC is a mothers' responsibility

Elderly women stated that once women are trained and are aware that it is their responsibility to attend PNC with their babies, they usually abide by such. In agreement, mothers admitted that once are aware of their roles they would prioritize attendance to PNC over other activities.

Our responsibility as mothers is to make sure that the child has been given all the vaccines that the doctor prescribed. We should not skip any vaccines because every vaccine that is written in the child's health passport is important. PNC Mothers' FGD, Facility 1

Economic Resources

Availability of finances to support transportation costs or if a family resides close to a health facility, facilitates attendance to PNC. Participants noted that women that have financial capabilities easily attend PNC services. The availability of motorcycle taxis enables women to easily get to a health facility for services

We have motorcycles these days so she can be placed in the middle and us at the back escorting her to the hospital. We will try our best to make it possible for her to go to the hospital. We even use a bicycle to carry her. Elderly Women's FGD, Facility 1

Male Involvement

When men are involved in PNC services and are encouraged to support and accompany their partners and babies for a postnatal check-ups, it results in more women and babies attending the services. It was noted that women that attend PNC services with their spouses are prioritized and are attended to first which further motivates women to patronize the services. Men viewed that their involvement lessens transportation challenges that women face which facilitates attendance to PNC services. Men reckoned that their involvement motivates a woman to attend services. Men take note of appointment dates and avail themselves to provide transportation to the facility.

What happens is that we carry them on our bicycles from home to the clinic and we get back to business. They cannot walk to the clinic, if you don't pick them, the atmosphere at home will not be good. That encourages the woman because she is assured of the availability of transport. Things are quite easy for those that have a bicycle, but for us who do not have one, we need to work hard to get one so that we should use it to carry them on the day they are supposed to come. Men's FGD, Facility 2

Community Factors

Community-based health support

The presence of health care workers who conduct home visits at the community level facilitates the utilization of PNC services. Their presence in the community lessens the burden that comes with travel for one to get to a health facility. An HAS narrated his plan of work in this manner:

Firstly we register every pregnant mother in the village, once she gets pregnant the HSA must know and have a list of pregnant women, she is visited at least it should not exceed three visits. Once she delivers, she is supposed to notify the HSA that she has delivered so that the baby can also be visited. HSA's FGD, Facility 1

We also have some health assistants who stay close to our homes, we can approach them and see how best they can help us. PNC Mothers' FGD, Facility 1

Village health committees assist in encouraging women to attend PNC services. These are established platforms in the community that acts as liaison points between health facilities and the community on health aspects. They notify the health workers should they sense that there is a problem with a particular family that requires health services.

Sometimes it is because of the health mentors or assistants who come to our communities to encourage us about going for postnatal, they can even tell us the actual dates when we can go. These mentors are there in almost every village and they advise us on issues to do with safe motherhood. Elderly women's FGD, Facility 1

Community Awareness

Participants stated that there is more awareness now regarding PNC services which encourages utilization. At the community level, the women that fail to show up are also penalized as per local by-laws. It was noted that HSAs usually give health promotion services that equip the communities with the necessary information on PNC services.

When we have meetings here in the village, the headmen teach us the importance of reporting for antenatal and postnatal services by both the mother and baby. So they encourage us to report for postnatal care so that all members of our households are healthy too. PNC Mother's FGD, Facility 2

Advice from Elderly women and Peers

The pieces of advice that elderly women render to mothers facilitate attendance to PNC services. Elderly women are custodians of tradition and norms related to pregnancy, childbirth, and postnatal care thereby having a greater influence on what a mother does during those times.

Sometimes it happens that a mother delivered the baby without any complications, when she goes home she is faced with another disease, maybe her fellow women will advise her to report back to the hospital for her to be checked. Elderly women's FGD, Facility 2

Health System Factors

Adequacy and attitude of Health workers

When a health facility has adequate staffing levels, it lessens the workload for the other members of staff and promotes the delivery of PNC services which in turn motivates women to attend the services. The availability of community-based health workers eases the burden of long distances to other static facilities because women make use of the available platforms within a village

Having enough health workers in the hospital so that when they come to the hospital they should not be insulted because the doctors speak rudely because they are tired of work so instead of just knocking off when they see a lot of patients they start speaking rudely some of which I cannot even explain. So if the doctors will be enough a lot of people will be helped and people will not feel bad about coming to the hospital. PNC Mothers' FGD, Facility 2

A positive, welcoming, and respectful attitude from health workers encourages the utilization of PNC services by mothers and babies. Participants were more concerned with the welcoming attitude of health workers and stated that if they are respected then most of the women will use the services.

There are some health workers here who speak to us warmly when we are talking to them so we come here knowing we will not be disappointed in any way. PNC Mothers' FGD, Facility 1

Seeking treatment for other conditions

The tendency to seek treatment of a condition at a facility following a child's illness facilitates attendance at PNC because women know that they will be assisted or referred for proper care

Sometimes a woman may not have a plan or appointment to come to the hospital but the baby might get sick or the mother is not feeling well, so she is forced to visit the doctor so that she can be told what is wrong. So when she reports at a facility she explains her problem, other women may still be bleeding so they come for help. Elderly women's FGD, Facility 1

Clinic activities and operations

Women get motivated to attend PNC services because of the health promotion activities that take place while at the facility like education, dancing, and singing. The promotion of PNC during the antenatal period also encourages them to attend the services. Women share amongst themselves these activities and others are motivated to attend PNC services. Administration of nutritional support encourages women to attend PNC services. Women recognize clinic activities as beneficial to their babies as they have better health outcomes.

It might also be that she is attracted to the teaching on how she can prevent another stillbirth, sometimes they might discover what went wrong for the stillbirth to happen. So she is advised on what to do to prevent a stillbirth... When you see the progress in the baby's weight you feel encouraged to be coming for postnatal care services and when you see that there is no progress you still feel motivated to come so that you can be helped. PNC Mothers' FGD, Facility 2

The tendency to prioritize 1 week and 6 weeks PNC attendees when they report for visits so that they do not spend a long time motivates women to show up for PNC services albeit the first one only.

The reason which makes the mother have an interest in coming for post-natal with the baby, firstly, is on the part of the hospital... the women who have come for PNC services at seven days after delivery and six weeks are prioritized and attended to first which encourages them to keep coming here at the hospital for they know that they will not wait for a long time. Health Worker In-depth Interview, Facility 1

Results from Observations

A total of 11 observations were conducted and covered 1 hour, 24 hours, 48 hours, one week, 2 weeks, 4 weeks, and 6 weeks post-delivery. In total, we observed interactions between postnatal women, and their babies with health care workers and paid attention to the health services they received. We observed for a total of 36 hours. In summary, the common services that babies received were vaccination with minimal advice on breastfeeding. The women that were due for TTV, received the vaccine. There were minimal instances where physical examinations were performed on the mother and baby and rarely was there any counseling done including among new and young mothers. There were exceptional cases where student nurses were available where education, demonstration of breastfeeding, and examinations were done. There were cases where women were seen in pain after delivery and there was no indication of receipt of pain killers let alone examination that is needed especially for those that were observed 24 hours post-delivery and were about to be discharged. Women would share advice among themselves or their guardians would advise them and others in the ward on what to do. Some of the pieces of advice included squatting in the delivery room to facilitate the delivery of the placenta and also tying a wrapper around the tummy after delivery which is believed to aid in the management of abdominal pains and cleansing of any products of conceptions (Table 6).

Table 6
Summary of Observations

Timepoint post-delivery	Centre	Number of Children	Hours of Observations	Services received
1 hour	Facility 1	1	5	<ul style="list-style-type: none"> • Instructed to clean up and bathe. • No other services during the 5 hours of observation • The nurse would enter the PNC ward and would only attend to those being discharged
24 hours	Facility 1	3	4	<ul style="list-style-type: none"> • HSA administers vaccination • A message inquiring about breastfeeding is broadcasted
24 hours	Facility 2	1	3	<ul style="list-style-type: none"> • No interaction with a health care worker
24 hours	Facility 2	2	4	<ul style="list-style-type: none"> • Seemingly in pain at the time of observations • No Nursing activities were observed • HSA announced of need for Vaccines
48 hours	Facility 2	2	3	<ul style="list-style-type: none"> • HSA announced of need for Vaccines and educates the women • A nurse calls the mother under observation to her office for discharge procedures

Timepoint post-delivery	Centre	Number of Children	Hours of Observations	Services received
1-week PNC check-up	Facility 3	1	4	<ul style="list-style-type: none"> • Health education by a student nurse on danger signs that the baby and mother may experience during the post-natal period, breastfeeding, and attachment including a demonstration, time points for post-natal check-ups, mentioned one week and 6 weeks and said that at six weeks they should come to start family planning and under-five clinics for the baby, child care and self-care at home, hygiene, keeping their genital area clean and those who had episiotomy should do sitz baths to help with healing of the wound. • The nurse also talked about keeping the baby clean and warm all the time. • HSA checks her baby's health passport book to ascertain receipt of Vaccines • Another student nurse was checking the temperatures of both mothers and babies, checked on breastfeeding procedures, and made necessary demonstrations • The baby was weighed, asked if breastfeeding and weight were communicated to the mother • Mother had abdominal palpation, asked about bleeding and if in pain, and all recorded in the health passport book and communicated on the date of the next visit at 6 weeks
4 weeks PNC	Facility 2	2	2	<ul style="list-style-type: none"> • At the time of discharge, there were no vaccines at the facility, she then got sick and got traditional medicines hence reporting 4 weeks later. • Mother kept baby covered but baby looked malnourished, • No documentation about labour and delivery in the health passport book • Breastfeeds the baby for a very short time and quickly covers the baby. Poor positioning while breastfeeding • The baby is registered and gets a vaccine, the mother counseled on the vaccine and is informed of where to access the next vaccines and the date

Timepoint post-delivery	Centre	Number of Children	Hours of Observations	Services received
2 months post-delivery	Facility 3	1	3	<ul style="list-style-type: none"> • Two months old unvaccinated baby, a student nurse alerts another nurse on the vaccination station that the baby will need all vaccines • HSA gives education on vaccines and their schedule and the under-five clinic and asks women to sing an under-five related song • Babies are weighed by student nurses with the help of HSAs and those eligible for vaccines are channeled appropriately • Student nurses demonstrate how to hold the baby but rarely shared what vaccine the baby is receiving • A cotton swab is given out to mothers without any explanation of its use and mothers learn from each other
6 weeks PNC	Facility 1	2	3	<ul style="list-style-type: none"> • The baby is weighed by HSA • HSA asks for the baby's age before vaccinating the baby, HSA explains to the mother the vaccines that the child will get and identifies by using the route of administration • After administering the oral vaccine, advises the mother to not breastfeed the baby without providing a rationale for that • The mother receives a tetanus vaccine after a nurse checks her health passport book
6 weeks PNC	Facility 3	1	2	<ul style="list-style-type: none"> • The baby is weighed by HSA and is vaccinated • All mothers are encouraged to keep babies wrapped up until a point of weighing and vaccination to avoid pneumonia • The mother receives her TTV and is advised of the next date of appointment

Discussion

Our findings on the uptake of PNC service showed that 90.5% of the women accessed PNC within 48 hours and fewer at the intervals of 3 to 7 and 8 to 42 days at 30.2% and 6.1% respectively. Among the neonates, 14.8% had low birth weight, 96.5% of the babies accessed PNC within 48 hours, 78.8% of the babies accessed PNC between 3 to 7 days and 13.7% of the babies accessed PNC from 8 to 42 days. The individual-level barriers include relocation, loss of a baby or mother, limited understanding of PNC services, lack of male involvement, and economic challenges. The community-level barriers are cultural

and religious beliefs, advice from community members, and community activities. The health system barriers include the distance between the clinic and the communities, lack of resources, and poor attitude of health care workers. The individual-level enablers include the level of education, the awareness that PNC is a mother's responsibility, male involvement, and economic resources. The community-level enablers include community-based health support, community awareness, and advice from elderly women and peers. The health system enablers include adequacy and attitude of health workers, seeking treatment for other conditions, and clinic activities and operations

Postnatal care utilization was high in our study and this contrasts with findings from Ethiopia where the rates of utilization were low [21]. Our findings further differ from findings that reported low PNC utilization in rural areas and those that reported a higher uptake in urban areas [8]. Our findings illustrate an improvement from previous findings in Malawi that showed that overall receipt of PNC services among mothers ranged from 3 to 16% [22]. The pattern of PNC attendance is striking with more mothers and neonates attending the initial visits and remains consistent with previous studies where the subsequent postnatal visits had a low rate of attendance [23, 24]. This could be explained by the health system operations where those that received PNC services were likely still admitted to the facility and thus could easily access them compared with the other time points when they have to report from home hence the barriers could come into play and impede their utilizations. For Malawi to successfully implement the 4 postnatal visits as advocated by WHO [25], there is a need to revisit the health system operations so that it does not systemically occlude attendance of the other visits. While the maternal and neonatal registers review indicates a high receipt of PNC services by 48 hours, our observations showed a contrary view whereby we did not observe PNC activities happening during those hours. This discrepancy could be explained by documentation and reliability challenges with the registers [26, 27]. Our findings from the observation mirror finding from an analysis from 33 DHS that showed that women that attended PNC services in lower-level facilities like the ones we used in this study were rarely assessed postnatally [28]. An analysis of the 2016 MDHS showed that only 48% were assessed by a skilled birth attendant at 42 days which was higher than in our study which was at 6% [8].

The lack of awareness as reported in our study as a reason for the non-utilization of PNC services was reported in earlier studies in Africa [29–34]. Evidence suggests that most women learn more about PNC during Antenatal care services (ANC) thus emphasizing the relevance of education during the ANC period [29]. On the other hand, knowledge of the importance of and realizing that PNC is a mother's responsibility facilitates the utilization of PNC. This aspect has been reported in previous studies in Africa [23, 30–32] and is empowering to the woman and improves her attitude towards PNC [35]. Knowledge of PNC can be shared either through health talks within the facility and also through mass media [30, 36–37]. The health promotional messages that are aired in Malawi should extend beyond antenatal care and delivery at a facility and include PNC services as well [36] because women that are knowledgeable of the possible postpartum complications use PNC services [37]. Education and availability of economic resources facilitate attendance to PNC services. This finding is similar to previous studies conducted in Africa that showed that women that were employed and had received a secondary school level education were more likely to attend PNC services [8, 28–32].

Our observations revealed a stark reality of the minimal care that the participants receive and we assert that the quality of the care rendered can be improved partly through training. Although the current WHO guidelines advocate for the administration of painkillers, participants in our study went away without getting analgesics which compromises the quality of care [25]. Similarly, there were minimal instances where counseling on breastfeeding and neonatal examinations were done which is also contrary to the WHO guidelines and has a potential of missing critical elements that may indicate complications [25]. The negative attitude of health care workers which is a construct within respectful maternity care [38] impedes utilization of PNC has been reported in previous studies [21]. The distance that a woman has to cover to access care influences the uptake of PNC services. This was reported earlier when a longer distance resulted in lower levels of utilization of the PNC services [23, 39]. Conversely, women that reside under 30 minutes walking distance away from a health facility use PNC services more than those that stay far away [24]. There is a need to take the services to where the users are at and PNC services in Malawi could be incorporated into the Village health clinics and outreach clinics like under-five clinics [40]. To realize that goal, health workers that run the community-based clinics will need to be trained for them to provide the required PNC services.

Male involvement influences the uptake of postnatal care services [8]. The absence of spousal support leaves a woman disempowered to decide to use health services for herself and her baby [34, 37]. In our study, the absence of MI also affected the utilization of PNC services when a male partner's involvement facilitates utilization. This is similar to previous studies that have shown that MI increased uptake of PNC services [23, 32, 39] and this is because women who are married receive adequate moral and financial support for women to attend PNC services. These gains made in MI in PMTCT in Malawi need to extend to PNC so that men are aware that they need to be involved in the entirety of the journey [41].

Our findings that cultural values, practices, community activities, and pieces of advice that a woman may receive may impede the utilization of PNC service build on evidence that has shown that misconceptions over PNC could be a barrier [32]. Furthermore, cultural practices, restrictions and confinement, and myths during the puerperium affect the utilization of PNC services [37]. A unique finding in our study was the lack of guidance and proper follow-up and management of orphaned babies and a mother without a living baby; there is a need to provide guidance and training on how to manage these subgroups so that their care is not compromised.

Our study showed that some women only attended the immunization section and omitted the PNC check section which is consistent with findings from another study [33]. A measure to resolve this problem which could be a result of a lack of knowledge of the need for the PNC services is to integrate the immunization and PNC services. The need to seek treatment coupled with the treatment that is received facilitates attendance to PNC services which is consistent with findings that assert that knowledge of an infant's danger signal also motivates a woman to attend PNC services with her baby [21, 39]. The realization that the facility will provide the necessary medical support motivates the women to attend PNC knowing that they will access medical services as well. Consistent with previous findings, the lack of resources affects the utilization of PNC services [40, 42, 43].

Conclusion

Optimization of uptake and utilization of PNC services for mothers and neonates will require the involvement of all stakeholders in the setting. The success of PNC services lies in the communities, health services, and mothers understanding the relevance, timepoint, and services that need to be delivered so that demand for the service is created. Custodians of culture and men need to be involved to mitigate barriers to attendance at PNC.

Abbreviations

ANC- Antenatal care; FGDs- Focus Group Discussions; PNC- Postnatal Care.

Declarations

Ethics approval and consent to participate

Participants were assigned codes that were used throughout the data collection and management process to maintain confidentiality. College of Medicine Research and Ethics Committee which is the ethics committee of Kamuzu University of Health Sciences approved this study (file number: P.03/20/2977) before initiation of any study procedures and all methods were carried out in accordance with relevant guidelines and regulations of the ethics committee and the Declaration of Helsinki. All participants gave written informed consent before any study procedures. Participants that could not read nor write thumb printed the form in the presence of an impartial witness.

Consent for publication

Not Applicable

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

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Authors' contributions

ALNM conceptualized the study, developed the proposal, supervised the data collection, analysed, and drafted the initial draft of the manuscript. BC, TC JCN, and MD conceptualized the study, developed the proposal and reviewed the manuscript. MC and SS collected the data, analysed the data, and reviewed the initial draft, AK analysed the data and reviewed the initial draft. All authors approved the final manuscript.

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- [AdditionalFile2PNCServicesDataExtractionFormfortheNeonate.docx](#)
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- [additionalFile4FGDforHSAs.docx](#)
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