

The Role of Group Antenatal Care in Reducing Maternal Morbidity and Mortality Rate Among Pregnant Mothers Attending Primary Health Care Facilities: A Case Study of Angwan Waje PHCC in Keffi LGA of Nasarawa State, Nigeria

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Abstract

The increasing rates of maternal morbidity and mortality has reached an alarming situation despite numerous antenatal care attendances by the pregnant mothers before the end of their pregnancy period. This tragedy posed questions on the authenticity and quality of ante-natal care services provided to pregnant mothers at the various primary health care facilities in the LGA. Earlier, Ante Natal Care services flow declined due to poor access, attitude of services providers and traditional belief. The main objective of this study is to examine the role played by the group antenatal care services in participatory learning session that led to the reduction in maternal morbidity and mortality rates. The study was conducted on 450 pregnant mothers attending primary health care facility Angwan Waje with catchment area population of 50, 180 people that rally round 7 settlements with annual target population of 2,158 as pregnant mothers. The method used during the study was cross sectional study design with mixed of both qualitative and quantitative data collection methods using simple random sampling on pre - tested questionnaire. Information generated from the data collection were analyzed using Statistical Package for the Social Sciences (SPSS) 20.0 software to ascertain results for better interpretation and presentation. Additionally, a focused group discussions and key informant interviews were held with the health care providers including the ante-natal care focal person and community representatives on their experiences and insight in Group ante natal care services.

Keywords: Group Ante natal Care, Primary Health Care Facility, Health Care Providers.

Introduction

Antenatal care (ANC) has repeatedly been shown to have reduced maternal and neonatal deaths via identification of risk factors attached to pregnancies and its subsequent outcome [1]. According to national primary healthcare development agency, one of the life course approaches in the continuum of care and neonatal interventions that needed to be scaled up is access to a skilled care during pregnancy [2]. Qualitative and effective Antenatal care services during pregnancy reduces maternal

mortality rate by 25% [2]. Generally, ANC has indirectly saved the lives of mothers and developing babies in the womb by establishing and promoting good health care services before childbirth and in early postnatal period (the periods of highest risk) [3]. As experience shown, ANC often presents the first contact opportunity for a mother to connect with health services, thus offering an entry point for integrated care, promoting healthy home practices, influencing care seeking behaviour and linking mothers with pregnancy

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complications to a referral system [4]. It was observed that mothers are more likely to give birth with a skilled birth attendant if they have had at least one ANC visit at primary health care facility [5].

According to United Nations Children Fund, "Antenatal care is essential for protecting the health of mothers and their unborn children" [6]. Through this form of preventive health care, mothers can learn from skilled health personnel about healthy behaviors during pregnancy, better understand warning signs during pregnancy and childbirth, and receive social, emotional, and psychological support at this critical time in their lives [7]. While research has demonstrated the benefits of ANC through improving health of the mothers and babies, the exact components of ANC and what to do at what time has been a matter of debate.

Previously, there has been a shift in thinking from the high-risk approach to focused ANC. The high-risk approach strategy intended to classify pregnant mothers as "low risk" or "high risk" based on predetermined criteria and involved many ANC visits to health facilities for antenatal services [8]. This approach was hard to be implemented effectively since many mothers had at least one form of risk factor or the other during their visits to the primary Health care facility.

In a multi-country randomized control trial study led by the WHO, a systematic review on ANC services showed that an essential intervention can be provided over four visits at specified intervals, at least for healthy mothers with no underlying medical problems [9]. The result of this review has prompted WHO to define a new model of ANC based on four goal-oriented visits. This model has been further defined by what is done in each visit, and it was called focused antenatal care. Under this approach, the optimum number of ANC visits for limited resource settings depends not only on effectiveness of the services offered, but also the costs and other barriers to ANC access and

supplies [9, 10]. This approach also has its shortcoming as health care providers spent an average of 46 minutes providing focused ANC to a first-time client, and 36 minutes for a revisiting client. This shows that there was thirty minutes more on an average than the usual practice and therefore poses traffic challenges for services delivery within ANC days.

Current WHO guidelines however states that an additional underlying benefits of mother's uptake of ANC by a medical professional reduces dropout from the continuum of maternal and reproductive healthcare [10]. As ANC plays a central role in the continuum of pregnancy care, a critical framework for understanding the continuity between maternal, newborn, and child health are seriously addressed [11]. This provides an opportunity for skilled professionals to educate and engage mothers on how and where to deliver in a facility (in-facility delivery), the benefits of exclusive breastfeeding, where and when to return for postpartum and postnatal care, and the availability of modern family planning methods [12]. Additionally, mothers who have a positive experience during their ANC visits may be more likely to bring their children back to health care facilities for services such as vaccinations and nutritional supplements [12]. While this logic is intuitive and optimistic, little evidence exists to confirm that receive of Focused ANC effectively keeps mothers in the health care system, particularly in poor population settings [13].

In a 3 years (2015-2018) study conducted by the Johns Hopkins Program for International Education in Gynecology and Obstetrics (jhpiego) and funded by Bill and Melinda Gates Foundation; a cluster random controlled trial was made comparing Group Ante-natal Care (G- ANC) to standard and individual ANC in Nigeria and Kenya [14]. The study revealed that in group care, health care providers placed mothers in a group (12 -15) with other mothers of similar gestational age at their first visit [15].

Future visits are however being scheduled based on mothers' experiences as group with common gestational period and health care providers will be facilitating meetings with all the mothers at once rather than individually (traditional ANC) [15].

The study found to be dramatic in linking mothers with the group (s) thereby increasing ANC services uptake with the mothers attending care as well as increasing the facility-based birth across all the ramifications in the LGA where service rates were low from the start [16]. This strategy allowed access to better ANC services particularly in the rural communities where they are largely constrained by Socio - cultural and gender based factors [17]. Mothers and Health Care Providers alike reported better provision and experiences of care and increasing in their confidence and ability to carry out healthy behaviour and make decisions when they are in groups [18]. Health care providers and mothers were very much satisfied with this services delivery model that also allowing them to form much closer relationships with each other [19]. A group Antenatal care is therefore a completely different strategy where pregnant mothers received Antenatal care together as a community and help each other instead of going through pregnancy alone as thus in the traditional way.

The main objective of this study is to examine factors that encourage pregnant mothers' participation in group antenatal care services and its influence in reducing maternal morbidity and mortality rates among pregnant mothers.

Material and Methods

The study was conducted on 450 pregnant mothers attending primary health care facility Angwar Waje, in Keffi local Government area for group Antenatal services. The facility has 7 catchment areas (the communities that are covered by the services of the facility) with 50,180 people that have annual target

population of 2,158 pregnant mothers. A cross-sectional mixed method of study was used in both quantitative and qualitative data collection methods, which was conducted between January and February 2022 in the LGA. Structured questionnaires were used for the collection of information from pregnant mothers on their experience with the group antenatal care and the benefits it offered toward reducing morbidity and mortality rates among the mothers. Basically, each group antenatal session held had 15 participants (socially distanced, following the COVID-19 protocols to avoid its transmission), with each session taking approximately 2 hours. Pregnant Mothers participated in the entire learning process with one person among them leading the process and little direction from the health care provider as facilitator. On evaluation of the lesson learned for each session of the day, mothers in circle asked questions on what they saw, what they heard and what they were shown; and other mothers individually respond to the questions within themselves with fun and enthusiasm. This made them to remember all that were thought during the visits, practice it, and sustain the knowledge and skills while at home.

Participants Consent

All participants (pregnant mothers) participated in the study were priorly briefed on the purpose and procedure of the study; written informed consent forms were made available and individually issued out to the subjects for their acknowledgement and subsequent compliance. It was based on their acceptance that questionnaires were distributed, filled, and retrieved for analysis.

Data Collection

Prior to the data collection process, the research instruments (Questionnaires) were pre-tested through a pilot study to determine its suitability and appropriateness to ensure clarity and relevancy as data collection instrument.

Data was collected by trained research assistants under the guidance of the principal investigator. Data was collected, cleaned, edited, and entered the SPSS version 20. Descriptive statistics were expressed as means/medians, frequencies, and percentages, whereas inferential statistics were analyzed using the Chi-square (χ^2) technique, where bi-variant analysis was conducted to examine the association between the Socio-demographics of mothers, the health care system factors and Group antenatal care uptake. Crude Odds Ratios (COR) are corresponding to 95 % Confidence Intervals (CI) were reported significant variables (with a p-value <0.05) from the bi-variant analysis which included in the models, the multivariate logistic regression was done to determine variables that are independently on ante natal uptake. Adjusted Odds Ratios (AOR) with corresponding 95% CI was reported, and significance levels of p-value < 0.05 were used for hypothesis testing. Qualitative data from the focus group discussions and key informant interviews were captured as stated from the focus groups and key informants, transcribed, and uploaded into the qualitative analysis software MAXQDA version 12. Data was analyzed following the six steps of the thematic approach developed by Braun and Clarke. These were interpreted thematically, woven, and added in the discussion together with the quantitatively interpreted data for the overall conclusion of the study findings according to the objectives of the study. The data from the quantitative and qualitative analysis were triangulated. Data and information collected during the study has been safely stored for future reference.

Result

The study successfully enrolled and analyzed 450 pregnant mothers within 20 -25 years, 26-

30 years and 31 years and above. From the 450 pregnant mothers surveyed, majority respondents 73% (328/450) were mothers within 20-25years of age, 17% (78/450) were mothers between the age of 26-30 years and 10% (44/450) were aged between 31 years and above as it has been indicated in the table 1. below.

The table 1. also looks at variable of Gravida (number of pregnancies a mother have in her lifetime). Although mothers that visited the health care facility with the first-time pregnancy contributed to 64% (386/450), mothers with the second time pregnancy were recorded as 21% (95/450) and 15% (69) were pregnant mothers that visited the health care facility within their third pregnancy.

During the study, pregnant mothers with the previous number of children (Para) were highlighted. Out of the total number of mothers sampled for the study, 71% (321/450) were mothers that had one child each and the current pregnancy was believed to be the second pregnancy. The mothers that had two children before and this was their third pregnancies were put at 25% (114/450). The mothers that were sampled with the three children much earlier before the current pregnancy were recorded as 8% (35/450).

The current Ante natal approach requires identification of mothers within the common gestational period for better grouping. During the conduct of this study, 64% (289/450) were mothers that fall within 12 weeks of their gestational period. Mothers that were falls within 16 weeks of gestational period were recorded as 28% (125/450). The mothers that were sampled during the research process to have falls within 20 weeks of gestation were 8% (36/450).

Table 1. Demographic Characteristic of Pregnant Mothers

| Variables | Frequencies (n= 450) | | | Total | % |
|----------------------------------|----------------------|-------------|--------------------|-------|-----|
| | 20-25 Years | 26-30 Years | 31 Years and above | | |
| Age | 328 | 78 | 44 | 450 | 100 |
| | | | | | |
| Gravida (Number of pregnancies) | First | Second | Third | 450 | 100 |
| | 286 | 95 | 69 | | |
| Para: (Number of children alive) | 1 | 2 | 3 | 450 | 100 |
| | 321 | 114 | 35 | | |
| Gestational Age | 12 weeks | 16 weeks | 20 weeks | 450 | 100 |
| | 289 | 125 | 36 | | |

Table 2. Knowledge and Awareness of ANC Services by Mothers and who Influenced their Decision to Accept the Services

| Variables | Frequencies (n= 450) | | | Total | % |
|------------------------------|----------------------|-----------|-------------------|-------|-----|
| | Yes | No | I don't know | | |
| First Time Visit | 386 | 53 | 11 | 450 | 100 |
| | | | | | |
| Source of Information | Husband | Friends | Health providers | 450 | 100 |
| | 130 | 86 | 234 | | |
| Who influenced decision? | Husband | Friends | Mother- in-Law | 450 | 100 |
| | 432 | 11 | 12 | | |
| Arrangement of Services flow | Individually | In groups | Somehow scattered | 450 | 100 |
| | 32 | 395 | 23 | | |

Table 2 above evaluates knowledge and awareness of G- ANC services by pregnant mothers attending primary health care facilities and who influenced their decisions to accept the services. While 86% (386/450) of mothers accepted that their coming to the facility was for the first time, 12% (53/450) of the mothers sampled answered that they came to the health facility for more than the first time. During the data analysis however, 2% (11/450) of pregnant mothers seems not to recall the time they visited the facility, instead they assumed they don't know.

On sources of information about the G- ANC the facility provides, 52% (234/450) of the pregnant mothers were said to have heard about group ante natal care from the health care providers and 29% (130/450) sourced their information from their husbands. The pregnant mothers that sourced their information from friends were put at 19% (86/450).

Some pregnant mothers were made to accept the G- ANC during the study was based on the

influence of their spouse, friends and mother in – laws. Based on the analysis done so far, 96% (432/450) of the mothers sampled were influenced by their husbands, 2% (11/450) from friends while 2% (12/450) were influenced by their mother in- laws.

During the conduct of this study, arrangement, or organization of the services flow within the facility setting and how its affect services delivery were also been assessed. Out of the total number pregnant mothers sampled for this study 88% (395/450) of pregnant mothers agreed that the way and manner services were delivered was through group effort with little facilitation by the health care providers, but 7% (32/450) said the services delivery has individually been conducted. Out of the total number of mothers sampled only 5 % (23/450) of the mothers described the services organization as somewhat scattered.

Table 3. ANC Services Utilization

| Variables | Frequencies (N= 450) | | | Total | % |
|---|----------------------|----|---------|-------|-----|
| | Yes | No | Silence | | |
| Satisfaction of the services offered by the facility. | 398 | 37 | 15 | 450 | 100 |
| | | | | | |
| Rating the Level of Satisfactions | 10 | 29 | 412 | 450 | 100 |
| | | | | | |
| Level of participation in learning session | 406 | 33 | 11 | 450 | 100 |
| | | | | | |
| What have you learned from G-ANC? | 421 | 25 | 4 | 450 | 100 |
| | | | | | |

Table 3 above described the Group antenatal care services utilization by pregnant mothers attending primary health care facility sampled during the survey activities. Out of the total number of 450 pregnant mothers sampled, 88% (398/450) said ‘yes’ indicating satisfaction of the services offered by the facility. But 8% (37/450) of the mothers said ‘No’ and 3% (15/450) of the mothers were silence during the data collection.

On rating the level of satisfaction experienced by mothers on G- ANC, 92% (412/450) of the pregnant mothers expressed ‘excellence’ during the rating process and 6% (29/450) expressed ‘better’ while 2% (10/450) expressed ‘good’ as their level of satisfaction for the group ante natal care.

Pregnant mothers were said to have been participated in the learning session during the group ante natal services. The level of their participation was analyzed after data collection.

During the study, 90% (406/450) of the total pregnant mothers sampled believed to have been actively involved in the learning session and 7% (33/450) of the mothers were passively involved. The 2% (11/450) pregnant mothers were silence about the level of their involvement in the learning session.

This study also took a look at the experience of pregnant mothers attending primary health care facility and the lesson they learned from Group antenatal care services. While 93.5 % (421/450) of the pregnant mothers sampled appreciated the current strategy of the ANC services through brainstorming and participatory learning session, 5.5 % (25/450) appreciated the lesson learned through lectures by the health care providers and only 0.8% (4/450) appreciated the group antenatal care services through general discussions on health care management as the lesson learned.

Table 4. Group Antenatal Care Services Impact

| Variable | Frequencies (N= 450) | | | Total | % |
|---|----------------------|--------|-----------------|-------|-----|
| | Not Agreed | Agreed | Strongly Agreed | | |
| Do you agree that G - ANC help you understand the concept of ANC? | 28 | 46 | 376 | 450 | 100 |
| | | | | | |
| Does the service provided reduce any morbidity and mortality rates? | 382 | 58 | 10 | 450 | 100 |
| | | | | | |

| | | | | | |
|--|--------------------|--------------------|---------------------|-----|-----|
| How strong are you likely to return to the facility for your delivery after G-ANC? | Very strong | Strong | I don't know | 450 | 100 |
| | 378 | 59 | 13 | | |
| How likely would you recommend G- ANC to other mothers | Likely | More likely | Most likely | 450 | 100 |
| | 45 | 89 | 316 | | |

Table 4 above evaluates the G- ANC services impact and how it contributed to the reduction of maternal morbidity and mortality rates. One of the variables used to collect information for the research work is whether the new strategy helps mothers to understand the concept of ANC. While 84% (376/450) of the pregnant mothers sampled for the study strongly agreed that the nature of the current strategy has helps them to understand the concept of the ANC generally, 10% (46/450) pregnant mothers agreed with the concept. But the remaining 6% (28/450) of the pregnant mothers do not agree.

On whether the current strategy of G- ANC can reduce maternal morbidity and mortality rates, 85% (382/450) of the pregnant mothers sampled for the study answered “Yes” as the G- ANC reduces maternal morbidity and mortality rates. The pregnant mothers that said “No” were recorded as 12% (58/450) and 2% (10/450) for mothers that responses were “ I don't know” respectively.

It was recorded that at the end of a successful pregnancy period, pregnant mothers come back to the facility where they received ANC services for delivery (labour). In this study however, mothers were asked during data collection process on how likely will they come back to the facility for their deliveries? Out of the total number of 450 pregnant mothers sampled for the study, 84% (378/450) of the mothers responded that they are very strongly willing to come back to the facility for delivery (labour) if need arose. But only 13% (59/450) of the pregnant mothers expressed their opinion as strong while 3% (13/450) of the mothers do not know whether they can come back to the same facility for their delivery or not.

On the likelihood of recommending G- ANC to other pregnant mothers visiting other health care facilities, 70% (316/450) of mothers sampled showed their most likelihood of recommending the G- ANC to other mothers. But 20% (89/450) responded more likely to the question that was asked and 10% (45/450) responded likely.

Discussion

The study was best discussed after carefully looking at the results of data collection, its components and the actual situation recorded during the data analysis using tables. The study enrolled 450 pregnant mothers within 20 years of age and above; and using questionnaires as a data collection tools. Pregnant mothers with pregnancies history and total children of each mother were assessed to evaluate the fertility level of mothers under study. The findings show that the major factors associated with increased Group Ante natal care services uptake at the primary health care facility context were organization of services flow, access and satisfaction of the services offered by the facility, understanding the concept of ANC by the mothers and reduced morbidity and mortality rates among pregnant mothers. The findings were more of health care system/service delivery-related factors than Socio demographics of mothers [20]. Availability of new strategy in placed is very important for effective ANC acceptance and utilization by mothers. Low ANC coverage among pregnant mothers was largely identified because of poor visit to the primary health care facility due to ignorant of the services offered by the facility, and attitude of the community towards services offered by the primary health

care facility. Consistent studies conducted within, and outside Nigeria agreed that availability of G- ANC strategy in placed at the primary health care facility level greatly impacted on ANC uptake by many pregnant mothers in the communities [21]. This was due to peer-led learning activities demonstrated during the conduct of the G- ANC services where individual mothers play a key role in the session conducted.

Although there was a prior difficulties in acceptance of ante natal care services in some parts of the communities under study, poor social and community mobilization for participation were commonly reported to have significantly hindered the successful ANC services. These were largely due to traditional belief, religions practices and socioeconomic problems. Thus, improving information dissemination among spouse, family, friends, and health care providers go a long way in sensitizing pregnant mothers to visit health care facility to utilize available services the facility can offered to ensure a better coverage [22]. In a current study however, the variation in the availability of a particular strategy against the previous ANC strategies used might have impacted the results. This was observed when mothers were seen in a circle with another mother among them leading them through facility activities process. Studies have previously established a better association between the quality and quantity of ANC and facility-based delivery through records in facility antenatal care and delivery registers. The experience of care that G- ANC provides within a cohesive peer group establishes a self-reinforcing cycle that motivates pregnant mothers to continue care [23]. The stronger this self-reinforcing cycle is, the more the pregnant mothers are exposed to series of interventions G- ANC can offered and provides opportunities to discuss the rationale, experiences, concerns, barriers, and solutions related to BP/CR and facility-based delivery [24].

However, information on whether pregnant mothers were more understood on the G- ANC activities and how it help to reduce maternal morbidity and mortality rates are areas for further investigation. Equally important to the acceptance of G- ANC services and its uptake is the easy access to ante natal services by pregnant mothers [25]. The study also showed that some mothers outside the study area patronize the study facility because of information dissemination by friends and health care providers. This was because pregnant mothers were optimistic that they will strongly recommend the G- ANC services to other pregnant mothers within and out-side their communities under study.

Conclusion

The concept of G- ANC and it subsequent implementation in primary health care facilities would have been a very successful strategy in the quality and quantity of services delivery to address maternal morbidity and mortality rates among pregnant mothers attending primary health facilities but certain shortcomings were identified to have limited it effectiveness. The new approach also allowed pregnant mothers to be within the circle of about 12-15 per session and one among them leading the session with the facilitation of health care providers. The session lasted for only 1-2 hours as against the traditional or focused antenatal care services that takes an average of 40 minute per individual pregnant mothers.

These shortcomings include knowledge gap on the side of the community to allow the participation of pregnant mothers in group antenatal care, not giving value to the approach as it is a time bound (mothers were not allow to waste time in the facility as clinic day is a free day to all mothers within the community as they use the day for their visitations and greetings) and cultural practices. It was also discovered that socio- economic status of the people in the community affect their early acceptance and maintaining the challenges of

visiting primary health care facilities for ANC services. Although attitude of primary health care providers seems to play a leading roles in making pregnant mothers dropping the schedule for ANC services, the current approach to G- ANC centred the entire activities to pregnant mothers with only health care providers facilitating the process.

Recommendation

For a new service delivery approach to have a transformational influence on maternal health care, it needs to be available to a large portion of the population. As such, future research should explore both the feasibility and impact of G- ANC adaptations in a variety of contexts (e.g. large, busy, tertiary hospitals, private facilities, Primary health care facilities with low ANC census) and report on the percentage of clients served through the group approach. The following are the recommendations developed to cushion the issues raised in the conclusion of the study. These include:

1. Strengthening social and community mobilization/ sensitization activities on the concept of G- ANC and the contribution the community can offered towards participation and subsequent sustainability of the programme within the people in the community.
2. Addressing some cultural practices which could be detrimental to the health or endanger the life of the pregnant mothers.
3. Provide income generating activities in the community particularly among mothers to increase their social and economic security thereby contributing to their well-being.

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4. Organize periodic training of the health care providers on the concept, principle and Procedure for G- ANC to update their knowledge and skills on how to face the challenges and reality of G- ANC.
5. Establishing a plate form where community- facility meeting will be conducted, and issues related to both will be addressed.

Study limitation

The study would have covered all the facilities in Iya 1 ward of keffi local Government area, but due to logistic, time and indeed personnel to support the conduct of the research; the researcher limited himself in Ungwar Waje Primary Health Care Centre.

Competing Interest

To the best of my ability, I wish to declare that there is no competing interest in the entire research process and final write up.

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